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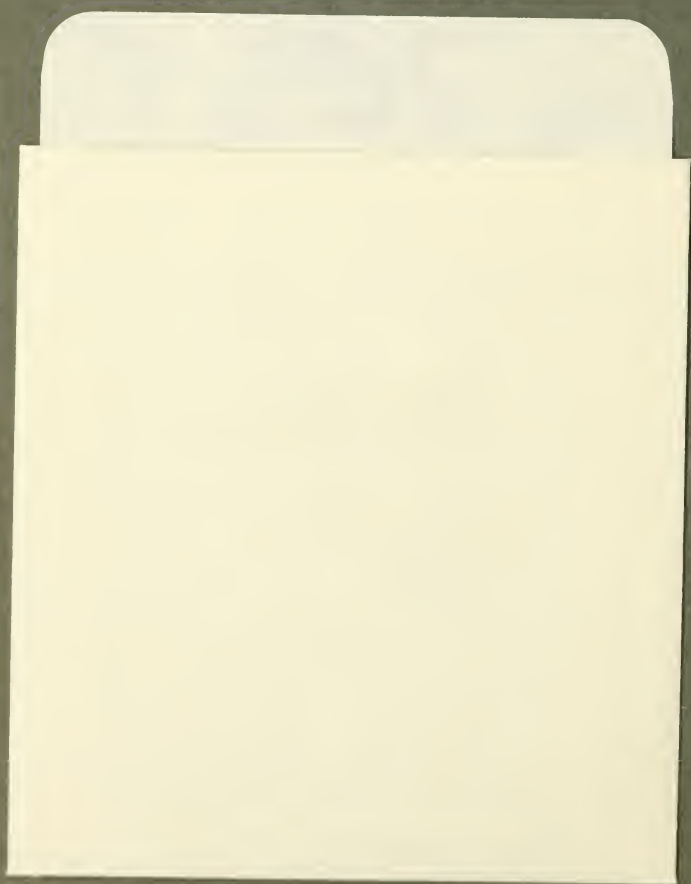
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BUREAU OF MINES
State Capitol, Denver
JOHN T. JOYCE, Commissioner of Mines

ANNUAL REPORT FOR
THE YEAR
1923



Denver, Colorado
Eames Bros., Printers
1924



STATE OF COLORADO
BUREAU OF MINES
State Capitol, Denver
JOHN T. JOYCE, Commissioner of Mines

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ANNUAL REPORT FOR
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LETTER OF TRANSMITTAL

To His Excellency,

THE HONORABLE WILLIAM E. SWEET,

Governor of Colorado.

Sir: In compliance with Section 3392 of the Compiled Laws of Colorado, 1921, I have the honor to transmit herewith the Annual Report of the State Bureau of Mines for the year 1923.

I wish to take this opportunity to express my high appreciation of the hearty manner in which you have co-operated with this Department in its efforts for the upbuilding and advancement of the mining industry.

Respectfully submitted,

JOHN T. JOYCE,

Commissioner of Mines.

State Capitol,
Denver, Colorado,
May 26, 1924.

PERSONNEL OF THE BUREAU OF MINES OF THE STATE OF COLORADO

JOHN T. JOYCE, Commissioner of Mines.....	Denver
T. R. HENAHEN, Inspector, District No. 1.....	Denver
M. J. McCARTHY, Inspector, District No. 2.....	Canon City
R. J. MURRAY, Inspector, District No. 3.....	Salida
ROBERT INNES, Inspector, District No. 4.....	Montrose
MISS ETHEL M. FLANDERS, Chief Clerk.....	Denver
MRS. A. M. NICKERSON, Stenographer.....	Denver

DISTRICTS OF INSPECTION

DISTRICT No. 1.—Moffat, Routt, Jackson, Grand, Larimer, Boulder, Gilpin, Clear Creek, Jefferson, Denver, Weld, Adams, Arapahoe, Morgan, Logan, Sedgwick, Phillips, Washington and Yuma Counties.

DISTRICT No. 2.—Douglas¹, Elbert, Teller, El Paso, Fremont, Custer, Huerfano, Las Animas, Pueblo, Lincoln, Kit Carson, Cheyenne, Kiowa, Crowley, Otero, Bent, Prowers and Baca Counties.

DISTRICT No. 3.—Rio Blanco, Garfield, Mesa², Delta, Eagle, Summit, Pitkin, Lake, Park and Chaffee Counties.

DISTRICT No. 4.—Montrose, San Miguel, Dolores, Montezuma, Ouray, San Juan, La Plata, Gunnison³, Hinsdale, Saguache³, Mineral³, Rio Grande, Alamosa, Archuleta, Conejos and Costilla Counties.

¹The northern part of Douglas County has been temporarily transferred to District No. 1.

²The southwestern part of Mesa County has been temporarily transferred to District No. 4.

³That part of Saguache County lying east of the Continental Divide, the northern part of Gunnison County and Mineral County have been temporarily transferred to District No. 3.

INTRODUCTION

During the year 1923 the activities of the State Bureau of Mines were confined largely to the usual routine as no funds for work of a special character were provided by the last legislature. However, considerable work was performed by the Inspectors and other employees of the Bureau in the way of gathering statistics as to the mineral resources of the state by counties and districts for general use and information.

The information thus obtained was used quite advantageously in inducing several active smelting concerns to investigate mining conditions in the state, particularly in the northern counties, with a view to entering the field and erecting one or more smelting plants in sections remote from the plants of the American Smelting and Refining Company. While at the date hereof no positive assurance can be advanced, still it appears quite certain that at least one large smelting corporation will erect such a plant during the year at Denver, or some other central point convenient to serve the mines of Gilpin, Clear Creek, Boulder and Park counties.

All of the operating metal mines, quarries, mills and smelters were visited and carefully inspected one or more times by the four inspectors, with the object of correcting or eliminating as far as possible unsafe conditions and practices employed in their operation and of gathering statistics as to the mineral resources of the state. The mine, mill and smelter operators have cheerfully cooperated in this work by granting unobstructed access to the workings on their property and readily complying with the recommendations of the inspectors.

The Commissioner, Inspectors and other employees of the Bureau are anxious to aid in every legitimate way the upbuilding of the mining industry in Colorado and the entire Western fields, and to that end are willing to lend their services at any and all times and invite requests for information.

Investigation of all concerns engaged in the promiscuous sale of mining stocks, units or bonds for the purpose of raising funds was instituted during the year and will be vigorously pushed under "The Securities Act" of the last General Assembly. Where

it is found that the properties they are operating or the enterprises in which they are engaged are meritorious and the funds raised for development and promotion are being honestly used to the best advantage possible, they will be encouraged and protected. But, on the other hand, where it appears that such enterprises do not possess merit and fail to measure up to the representations made in their prospectus, advertisements or literature sent through the mail to prospective purchasers or investors, or where the funds thus raised are not being honestly employed for the purposes represented, the facts obtained from such investigation will be reported to the proper authorities for appropriate action under the provision of said act. In short, the Bureau will encourage, aid and protect all honest and legitimate enterprises, but proposes to put an end to the exploitation of the public by "faking" concerns through the sale of cheap stocks.

The Commissioner desires to express his appreciation of the loyal support and efficient services rendered by the entire personnel of the Bureau during the year and for the co-operation of the Colorado School of Mines, the Colorado Geological Survey, the Colorado Metal Mining Association, the United States Bureau of Mines and the United States Geological Survey.

METAL MINING IN 1923

The metal mining industry, like others, suffered a rapid and serious decline following the close of the great war. Colorado, in common with other states of the Western mining fields, not only felt the effects of the general depression, but also labored under additional adverse local or state conditions, the combined effects of which have caused suspension of operations in at least 65 per cent of our mines which could operate profitably under a partial restoration of pre-war conditions. However, the industry in this state is slowly recovering, as evidenced by a gradual increase in our production during the past two years. The production of the State of Colorado for the year 1921 amounted to \$14,005,500 being the lowest in the state's history since 1878, the first year of the heavy production from the Leadville carbonate fields. The production in 1923 amounted in round numbers to \$18,020,000, an increase of \$2,767,500 over the previous year; an increase of nearly 20 per cent.

While this increase is very encouraging, it fails to bring entire satisfaction to a large majority of mine owners and operators of Colorado, and by no means represents in a comparative way our vast metallic mineral resources or the possible production of the developed mines, the larger number of which were inoperative during the year, as above stated, or the undiscovered and undeveloped prospects of the state.

The suspension of operations of the Denver and Pueblo plants of the American Smelting and Refining Company has compelled the mines and mills of Clear Creek, Gilpin, Boulder and Park counties to ship their ores to the Leadville plant for treatment. This necessarily entails a heavy transportation cost which, in itself, equals and, in many cases, exceeds the margin of profit in the low grade mines of the above mentioned counties and has caused many of them to cease operation. Reliable reports from this district show that many of these mines contain enormous bodies of ore reserves from which an ample supply could be furnished to a smelter that might be erected at Denver, Golden or any other convenient point.

During the past year tungsten mining has been resumed. These mines have been lying idle since 1919.

An increase in the cost of mine supplies of approximately 70 per cent above pre-war levels, coupled with high taxation and scarcity of labor, created an economic burden under which the mining industry has labored since the close of the war. While its deterrent effects were universal, they were more keenly felt in the gold mining districts. Thus Cripple Creek, being essentially a gold mining camp, suffered more from that condition than any other part of the state. This has caused the suspension of many of the lower grade mines in this wonderful district, as evidenced by a serious decline in its annual production since 1916, when it produced \$12,-

119,550, as against \$4,077,559 in 1922. Even a partial approach to normal conditions would soon restore Cripple Creek with its well-known large mineral resources to its former position among the leading gold-producing camps of the west.

The principal towns of the Cripple Creek mining district are Victor, Cripple Creek and Goldfield, with a combined population of 4,500, who depend entirely on mining for a living. The principal mines, with one exception, are located in the eastern end of the district. The production of this district to the Golden Cycle mill, at Colorado Springs, is about 650 tons per day. About 1,000 men are employed at present at an average wage of \$5 per day. The largest operating properties are the Portland, Cresson, Tonopah-Ajax, Vindicator and Granite.

The recent rich strike on the 27th level of the Portland Mine, revealing a vein 8 to 10 feet wide of high-grade gold ore, some of which runs from 400 to 500 ounces in gold to the ton, has aroused much enthusiasm throughout the entire district and, coupled with leasing and bonding of the Stratton Estate properties to eastern capitalists, improved conditions of the Cresson Mine and the proposed resumption of the Modoc and other well-known pre-war producers, assure a bright future for Cripple Creek. A heavy increase in ore production and general ore values is confidently predicted for 1924. This belief is based largely upon proof furnished by recent discoveries in the lower levels of the Portland and Cresson, that the ore values increase with depth and has resulted in stimulating activities throughout the district. Many mine operators are already actively exploring the lower zones of their properties and others are preparing for vigorous operations in that particular.

Mining conditions in Fremont county are very promising. The two zinc oxide plants, both cement plants, seventeen limestone, shale and granite quarries and four clay mines are operating steadily.

Most of the mining in Custer county is of a prospective nature, except that done by the Colorado Lead Products Company, which produces about 200 tons per day. In the opinion of many of the leading mining men of the state, this county presents one of the most promising prospecting sections in the Western fields. Outside of the mine mentioned above and a few former producers, this field has never received the attention it invites and deserves from the "prospector." The recent discovery of rich silver ore in the Mountain Boy Mine has aroused considerable interest, and prospectors are preparing for a vigorous campaign during the year.

Increased activity was noticeable during the year in the counties of Lake, Saguahe, Eagle and Summit.

At Leadville the principal supply treated at the local plant of the American Smelting and Refining Company comes from the Yak Tunnel and the Ibex, the former furnishing 2,500 tons and the latter 600 tons per month, mostly produced by leasers. Two most important projects which will mean much for the future of

Leadville are under way. The Canterbury Tunnel, being driven by local and Denver capital, aims to develop the ground in its immediate vicinity and to drain the mines of Fryer Hill and Evans Gulch for a distance of 240 feet below the level of the Yak Tunnel, thus giving new life to the rich mines of the sections mentioned. The other enterprise is the unwatering of the territory which lies between the Carbonate and Iron faults through the installation of electric pumps in the Pyrenees and Greenback shafts.

Iowa Gulch is attracting more attention than usual, owing to the recent discovery made in the Little Alice claim through the Ready Cash Tunnel. Its greatest significance lies in the fact that it dispels beyond all doubt the mooted question as to whether ore exists in any appreciable quantity south of Iowa Gulch. It has proven the continuity of the same body of ore that was discovered in the Hellena about 2,500 feet to the north and has stimulated prospecting in its immediate vicinity. It is now quite evident that the entire area south to Weston Pass and extending on to Granite in Chaffee county will receive much well-deserved attention by prospectors during the year.

The principal mines operating in Saguache county during the year were the Rawley, which produced 300 tons of milling ore daily, and the Orient Mine, producing 350 tons of iron ore per month while preparing to increase its monthly production to 6,000 tons. The Rawley Mine, with its well-known large body of lead-silver ore, has temporarily suspended operation, but will likely resume by early summer and once again be placed on the list among the heavy shippers of the state.

The Cocomongo is treating a small tonnage through its recently completed mill.

The Empire Zinc Company in Eagle county is producing about 8,000 tons per month of sulphide iron for silver values and zinc sulphide for zinc contents.

The Wellington Mine in Summit county is running full capacity, producing lead and zinc concentrates. The Detroit is a new shipper and from 12 to 15 carloads of high-grade silver-lead ore are being taken out each month. The Missouri has opened up a good streak of lead carbonate and has shipped from 10 to 15 cars the last two months. The Royal Tiger Mill, having a capacity of 400 tons, is almost completed and development work is being carried forward in the mine with an increased force of men. The Warriors Mark and the Seven-Thirty are doing considerable development work and have opened up some ore recently. The Jerry and Toledo at Montezuma have installed a compressor and are pushing their main tunnel ahead. The ores from these properties are galena and ruby silver. The dredges of the Tonopah Placers Company and the Blue River Placer Mining Company have been operating steadily. The Eureka Mine has resumed operations.

The Sedalia Mine, in Chaffee county, has been reopened and the company plans to build a concentration and flotation mill in the near future. The Lilly Mine is sending out two or three carloads of silver-lead ore a month. W. F. Gordon, inventor of the Gordon Fuming and Metal Process, and his associates are planning to take over the Salida Smelter with a view to installing a plant in the near future.

Several new and important discoveries were reported from Park county during the year, which have stimulated development work in both mines and prospects to such an extent that the year 1924 opens full of promise for a partial restoration at least of this old-time section to its former activity.

In the Hope Mine at Aspen an important strike of good silver ore was recently reported. Though this famous silver-producing district was hit hard by the suspension of the Pittman Act, the courage of its operators has not been subdued, and recent reports indicate a material increase in activity and production for the coming year.

The marble quarries at Marble, in Gunnison county, are very active at the present time. The town of Marble has a population of about 500 people, whereas a short time ago it had less than one hundred.

Like other sections, southwestern Colorado has been somewhat affected by the closing of the Pittman Act and the low price paid for silver. However, more work is being done on and in the mines in the San Juan country than at any time since the general depression in 1907. The new sulphating plant constructed at the Durango Smelter has treated enough ore or concentrates to prove that the process is a success. The San Juan country has much lead-zinc sulphide ore and mine owners are looking forward to the time when the plant will be enlarged to receive their ores. At the present time the Black Bear Mine at Telluride supplies all the ore that the plant can handle.

In Gunnison county the Akron Mines at Whitepine have been operating continuously. A good grade of silver-lead-zinc sulphide is produced and shipped to Coffeyville, Kansas. The contract with the ore buyer limits them to 1,000 tons per month; otherwise the mine could stand a much larger production.

An old prospect shaft on Fairview Hill, owned by the late A. E. Reynolds, has been taken over by the Tennessee-Colorado Development Company, which is preparing to sink the shaft 600 feet from its present depth to open an ore body discovered years ago by diamond drilling.

Exploratory and development work has been under way in Hinsdale county and a number of the mines are in readiness to begin shipping next year.

While La Plata county is not classed among the heavy shippers of the present year, considerable developing and prospecting work was performed on many mines in the county. In the May Day the lost vein, from which some of the richest ore ever produced in the state was shipped several years ago, was picked up. One of the important undertakings which promises well for the future is the development of the Allard and other groups which comprise an immense area of ground containing 80 contiguous claims lying in the La Plata Mountains. The entire area is intensely mineralized and gives evidence of great future possibilities.

The principal shippers in Ouray county during the past year were the Mountain Top and the Atlas. With large reserves and increased capacity, both these companies are planning for a large output in 1924.

The future looks bright for San Juan county. The Sunny-side has been in continuous operation, producing around 16,000 tons of ore per month, making concentrates of about 300 tons for the Durango Smelter. Development work on the Pride of the West has revealed a large vein of high-grade milling ore.

The Gold King, at Gladstone, after three years' inactivity, has resumed operations and will take its place among the shippers of the county.

The new mill and tramway erected at Howardsville to treat the ores of the Little Nation Mine are ready to operate.

In San Miguel county the Smuggler-Union is being operated with a force of 320 men, with a monthly production of 19,000 tons; the Tomboy with a production of 18,000 tons per month and the Black Bear with a monthly production of 9,000 tons.

Mention might well be made of several other properties, operated for the most part by lessees and located principally in the vicinity of the two smelters, which furnish considerable tonnage to each of these plants.

During the year many important new discoveries were made throughout the state which will add materially to the anticipated output of 1924 and go a long way toward proving the inexhaustibility of our mineral resources.

Among the new fields which might be mentioned as possessing many allurements for the return of the prospector are Custer county, La Plata and Needle Mountains in La Plata county, the San Juan gold belt, the immense area in the mountains of Archuleta county north of Pagosa Springs, Park county, the large area in and south of Iowa Gulch in Lake county and the new fields which will become accessible by the construction of the Moffat Tunnel.

Conditions affecting metal mining operations in Colorado are slowly improving, and the gradual increase in our annual production since 1921 shows that the industry in this state is keeping pace therewith—in fact, outstripping it—and dispels at once the erroneous thought that seems to have found lodgment in the minds of the over-skeptical that our vast metallic mineral resources are verging on the edge of exhaustion. On the other hand, the large ore reserves in our developed mines are sufficient to meet every demand, while our unexplored and undeveloped fields are so vast and promising that their greatness and future possibilities are beyond human calculation.

HISTORICAL NOTE

The Bureau of Mines of the State of Colorado was established by an act of the Tenth General Assembly, approved March 30, 1895. This act repealed a previous act creating an "Inspector of Metaliferous Mines," which was passed in 1889. The Bureau of Mines law established the office of Commissioner of Mines, provided for in the State Constitution, and charged him, among other things, with the supervision of metal mine inspection and the enforcement of laws relating to safety and health in metal mines. Subsequently this was broadened to include "any ore mill, sampling works, smelter, metallurgical plant, rock quarry, clay pit, railroad tunnel, rock excavation or mine of whatsoever kind or character, except coal mines." The Commissioner of Mines was also charged, "as he has opportunity and means," to collect mineral specimens and exhibit the same, to collect books relating to mining and geology, to collect and preserve data regarding mining methods, mining costs, milling, metallurgy, geology, mineral deposits of all kinds, and so on. Aside from the purchase of the Elsner collection of minerals, very little "opportunity and means" has been granted to the Commissioners for anything except inspection work. The present activities of the Bureau of Mines are treated elsewhere in this report.

COMMISSIONERS OF MINES

Harry A. Lee.....	May 11, 1895-May 10, 1903
E. L. White.....	May 10, 1903-May 10, 1907
T. J. Dalzell.....	May 10, 1907-May 10, 1911
T. R. Henahen.....	May 10, 1911-May 10, 1915
Fred Carroll	May 10, 1915-June 1, 1919
Horace F. Lunt.....	June 1, 1919-June 1, 1923
John T. Joyce.....	June 1, 1923-

PUBLICATIONS OF THE BUREAU OF MINES

BULLETINS

- Bulletin No. 1, Recommendations for Safety Appliances in Mining, Harry A. Lee, Commissioner of Mines, 1896.
- Bulletin No. 2, Precious Metal Production for the year 1898, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 3, Mining Laws Relative to Bureau of Mines, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1899.
- Bulletin No. 4, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1901.
- Bulletin No. 5, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1902.
- Bulletin No. 6, Regulations Relative to the Construction, Equipment and Operation of Metalliferous Mines, Mills and Metallurgical Plants, Recommendations and Mineral Production for 1905, E. L. White, Commissioner of Mines, 1906.
- Bulletin No. 7, Federal and State Laws Relating to Mining, Fred Carroll, Commissioner of Mines, 1916.
- Supplement to Bulletin 7, Mining Laws Enacted by the Twenty-first General Assembly, Fred Carroll, Commissioner of Mines, 1917.
- Supplement No. 2 to Bulletin No. 7, Amendments to the Mining Laws Enacted by the Twenty-second General Assembly, Horace F. Lunt, Commissioner of Mines, 1919.
- Supplement No. 3 to Bulletin No. 7, Amendments to Laws Relating to Mining Enacted by the Twenty-third General Assembly, Horace F. Lunt, Commissioner of Mines, 1921.
- Supplement No. 4 to Bulletin 7, Amendments to Laws Relating to Mining Enacted by the Twenty-fourth General Assembly, Horace F. Lunt, Commissioner of Mines, 1923.
- Bulletin No. 8, The Oil Shales of Northwestern Colorado, Horace F. Lunt, Commissioner of Mines, 1919.
- Bulletin No. 9, Mine Safety Standards, Horace F. Lunt, Commissioner of Mines, 1920.

REPORTS

- Report of Bureau of Mines, Colorado, from its establishment in May, 1895, to November 30, 1896, Harry A. Lee, Commissioner of Mines, 1896.

- Report for the Year 1897, Harry A. Lee, Commissioner of Mines, 1898.
- Report for the Year 1898, Harry A. Lee, Commissioner of Mines, 1899.
- Biennial Report for the Years 1899-1900, Harry A. Lee, Commissioner of Mines, 1900.
- Biennial Report for the Years 1901-1902, Harry A. Lee, Commissioner of Mines, 1903.
- Biennial Report for the Years 1903-1904, E. L. White, Commissioner of Mines, 1905.
- Biennial Report for the Years 1905-1906, E. L. White, Commissioner of Mines, 1907.
- Biennial Report for the Years 1907-1908, T. J. Dalzell, Commissioner of Mines, 1909.
- Biennial Report for the Years 1909-1910, T. J. Dalzell, Commissioner of Mines, 1911.
- Biennial Report for the Years 1911-1912, T. R. Henahen, Commissioner of Mines, 1913.
- Biennial Report for the Years 1913-1914, T. R. Henahen, Commissioner of Mines, 1914.
- Biennial Report for the Years 1915-1916, Fred Carroll, Commissioner of Mines, 1916.
- Biennial Report for the Years 1917-1918, Fred Carroll, Commissioner of Mines, 1919.
- Annual Report for the Year 1919, Horace F. Lunt, Commissioner of Mines, 1920.
- Annual Report for the Year 1920, Horace F. Lunt, Commissioner of Mines, 1921.
- Annual Report for the Year 1921, Horace F. Lunt, Commissioner of Mines, 1922.
- Annual Report for the Year 1922, Horace F. Lunt, Commissioner of Mines, 1923.
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At the time this report goes to press, there are available for distribution copies of the Biennial Report for 1915-1916, Annual Reports for 1919, 1921 and 1922, Bulletins 7, 8 and 9. The price of Bulletin 7, with supplements, is 50 cents, all other available publications are free. The supply of publications not mentioned above is exhausted, but copies may be found in many of the public, state and college libraries throughout the country.

Note:—The Colorado Geological Survey, Boulder, Colorado, has published a number of geological reports and maps, a list of which may be obtained from R. D. George, State Geologist, Boulder, Colorado.

TABLE I

PRODUCTION OF THE PRINCIPAL METALS IN COLORADO IN 1922 AND 1923

Compiled from figures by C. W. Henderson, Mineral Geographer, U. S. Geological Survey. Figures for 1923 are preliminary and subject to correction.

	GOLD*				SILVER				LEAD				COPPER				ZINC				Total Value		Increase or Decrease	County	
	1922		1923		1922		1923		1922		1923		1922		1923		1922		1923		1922	1923			
	Fine Ounces	Value	Fine Ounces	Value	Fine Ounces	Value	Fine Ounces	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Value	Value			
Adams	24.09	\$ 498																			\$ 502	\$	\$—	\$ 502	Adams
Boulder	1,791.66	37,037	1,285.50	26,574	121.073	121,073	39,528	32,413	68,470	3,766	30,232	2,115								161,876	61,103	—	100,773	Boulder	
Chaffee	964.40	19,936	841.44	17,394	26.187	26,187	20,941	17,172	661,728	36,395	558,789	39,115	20,525	2,771	7,255	1,065	178,000	10,146	133,000	95,435	83,791	—	11,644	Chaffee	
Clear Creek	1,751.13	36,199	1,493.49	30,873	196.207	196,207	183,741	150,668	1,042,491	57,337	1,054,647	73,825	7,874	1,063	78,337	11,514	800,000	45,600	539,300	336,406	303,552	—	32,854	Clear Creek	
Custer	8.08	167	122.82	2,539	14.520	11,520	28,593	23,446	660,618	36,334	1,660,794	115,255	32,141	4,339	11,437	1,581				55,360	143,921	+	88,561	Custer	
Dolores	94.48	1,953	139.80	2,890	30,267	30,267	39,410	32,316	87,200	4,796	152,413	11,369	24,089	3,252	61,247	9,003			137,800	9,370	40,268	+	24,680	Dolores	
Douglas .....	.58	12																		12		—	12	Douglas
Eagle	3,488.37	72,111	2,060.69	42,598	583,737	583,737	327,593	268,526	322,818	17,755	507,612	35,533	1,330,296	179,590	632,845	93,028	11,000,000	627,000	23,600,000	1,604,800	1,480,193	—	564,392	Eagle	
Fremont	1.02	21	1.31	27	174	174	186	152	4,273	235	1,997	110	348	47					19,800	1,346	477	+	1,188	Fremont	
Gilpin	2,501.96	51,720	1,422.55	29,407	43,910	43,910	44,951	36,860	246,945	13,582	231,553	16,209	24,860	3,356	19,815	2,913				112,568	85,389	—	27,179	Gilpin	
Grand .....		.06	1	1	324	265	239	17														+	284	Grand
Gunnison	444.08	9,180	1,160.69	23,994	3,803	3,803	21,947	20,456	13,382	736	1,600,896	112,063	526	71	1,788	263			2,889,000	196,452	13,790	—	339,438	Gunnison	
Hinsdale	62.79	1,298	35.40	732	50,074	50,074	30,046	24,638	114,200	6,281	19,969	1,398	14,269	1,926	10,074	1,481				59,579	28,249	—	31,330	Hinsdale	
Lake	19,981.68	413,058	13,071.27	270,207	952,048	952,048	655,767	537,729	5,521,818	303,700	5,625,800	393,806	871,370	117,535	511,773	75,231	9,003,000	513,171	9,414,500	640,186	2,299,612	—	382,453	Lake	
La Plata	1,560.63	32,261	770.90	15,936	10,656	10,656	17,140	14,055			1,801	126			816	120				42,917	30,237	—	12,680	La Plata	
Mineral	80.01	1,654	116.80	2,414	106,903	106,903	228,858	187,672	153,455	8,440	235,967	16,588	3,422	462	1,091	160			41,400	2,815	117,459	+	92,190	Mineral	
Moffat	5.51	114																		114		—	114	Moffat	
Montrose	15.58	322	8.80	182	17,968	17,968	23,322	19,121					51,119	8,251	57,162	8,403				26,541	27,709	+	1,168	Montrose	
Ouray	6,093.32	127,960	878.80	18,166	1,226,670	1,226,670	550,985	451,808	1,484,526	81,649	1,204,138	84,290	58,149	7,850	44,509	6,543				1,442,129	560,807	—	881,322	Ouray	
Park	6,875.07	142,120	7,193.63	148,706	15,528	15,528	18,579	15,235	155,982	8,579	19,400	1,358	4,215	569	5,585	821				166,796	166,120	—	676	Park	
Pitkin		1.00		21	525,169	525,169	429,581	352,256	3,555,309	195,542	2,976,615	208,363								464,800	31,605	—	128,465	Pitkin	
Rio Grande		82.25	1,700	161	132						932	65			215	32				720,711	592,246	+	1,929	Rio Grande	
Routt		1.85	38	82	82																	—	44	Routt	
Saguache	234.57	4,849	207.04	4,280	63,512	63,542	155,724	127,693	111,782	6,148	2,919,204	204,344	41,622	5,619	459,477	67,543				80,158	403,860	+	323,702	Saguache	
San Juan	1,246.09	25,759	11,679.48	241,436	77,864	77,864	459,179	376,528	1,651,982	90,859	10,378,155	726,471	110,348	14,847	974,298	143,222	1,300,000	74,100	9,279,800	631,027	283,479	—	1,835,205	San Juan	
San Miguel	52,110.80	1,077,846	66,099.78	1,366,404	1,645,459	1,645,459	1,982,007	1,625,246	7,069,891	388,319	9,360,637	655,244	673,867	90,972	1,034,941	152,137				3,202,626	3,799,031	+	596,405	San Miguel	
Summit	13,630.22	281,762	11,327.39	234,158	119,604	119,604	142,528	116,872	559,330	30,763	3,892,829	272,498	94,413	12,746	18,262	2,685	977,000	55,689	7,040,900	478,782	1,104,995	+	604,431	Summit	
Teller	196,318.03	4,037,582	195,865.81	4,048,906	24,462	24,462	22,637	18,562												4,062,044	4,067,468	+	5,424	Teller	
Total	308,314.15	\$6,373,419	316,868.55	\$6,529,583	5,855,911	\$5,855,911	5,426,738	\$4,440,925	23,477,200	\$1,291,246	42,445,620	\$2,971,193	3,373,454	\$455,416	3,930,528	\$577,846	23,258,000	\$1,325,705	53,560,300	\$3,642,100	\$15,301,698	\$18,170,647	\$+2,868,949		
Decrease, 1923																									
Unit prices		\$20.67		\$20.67		\$1.00		\$0.82		\$0.055		\$0.07		\$0.135		\$0.147		\$0.057		\$0.068					

*Includes placer production.

PRODUCTION

Gold, Silver, Copper, Lead and Zinc.

The production of gold, silver, copper, lead and zinc for 1922 and 1923 is shown in Table I. The figures for 1922 are final; those for 1923 are preliminary and subject to correction.

The gold dredges in Summit and Park counties, the production of which is included with that of the lode mines in Table I, recovered bullion containing about 17,265 ounces of gold and 4,026 ounces of silver.

Miscellaneous.

Plastic clay, fire clay, gypsum, lime, sandstone, fluorspar and other non-metallic minerals have been produced to meet local demands. The marble quarries have been very active during the past year.

Tungsten mining was resumed by the Wolf Tongue Mining Company and the Vasco Mining Company near Nederland during 1923 and the manganese properties in the Leadville district were reopened. About 115 tons of carnotite ore was produced by the operators in Montrose county.

Acknowledgment.

Thanks are due to George Otis Smith, Director, and C. W. Henderson, Mineral Geographer of the United States Geological Survey, for the production statistics regarding the common metals.

FATAL ACCIDENTS, 1923

Underground.

January 11, Gus W. Berg, age 63, employed as a mucker in a mine in Ouray county, was instantly killed by a fall of rock from the back of the drift in which he was working. Our investigation showed that the rock was evidently loosened by the previous blasting, but he failed to notice this condition on his return to work.

February 14, while at work in a mine in Saguache county, Joe Suto, age 28, of Leadville, was killed by falling 80 feet down a raise. The accident was caused by his failure to sufficiently nail the cleats to the raise timbers on which he had placed a drilling staging. The weight of himself, machine and the pressure it was working against caused the cleats to give way. No inquest was held, as our investigation revealed that the accident was the result of his own negligence.

March 14, John Lasser, age 45, a timberman employed in a mine at Telluride, while engaged in placing a stull in a mine drift preparatory to installing a new set of timbers, was struck by a cave of loose ground and had his leg broken. He was taken to a hospital, where he died three days later from complications which developed shortly after the accident.

May 3, in a mine in Saguache county, Sirio Mascarenas, age 24, while spragging for machine men was crushed beneath a heavy rock fall, from the effects of which he died the following day at a Red Cross hospital. The accident was caused by failure to bar down loose rock.

June 25, in a mine in Eagle county, Hugh McGuire, age 40, while picking out a base for timbers in a stope was instantly killed by a fall of rock. He had been warned by one of the timbermen to get out from under the ground, as it was very bad, but he did not heed the warning in time.

July 9, two men, Joe Prepich, age 23, and Adam Ahil, age 38, employed as muckers in a mine in San Miguel county, were instantly killed by a blast. There were no witnesses to the accident, but from our investigation it appears that they returned before the last shot went off.

August 16, in a mine near Leadville, Joseph Sheridan Roper, age 28, was instantly killed by the fall of a small slab of soft ground from the back of the drift in which he was working. The coroner returned a verdict of unavoidable accident.

August 16, Policarpio Martinez, age 25, while mucking behind a contractor for whom he was working in a mine near Telluride, received injuries by a fall of rock, from which he died on August 23. Our investigation shows that the accident was the result of carelessness on the part of the contractors in failing to keep the ground properly timbered.

August 19, in a mine near Telluride, Louis Zupanick, age 30, a timberman, while barring down some loose ground was caught under a heavy slab of rock, which fell from the roof of the level, and he was instantly killed. It appears that no one could be held responsible for the accident other than the deceased.

August 29, in a mine at Ilse, J. F. Morgan, age 52, a contractor, while standing on a ladder in a manway using a drill to loosen the muck in the chute on the other side of the partition, was struck on the head by a falling rock and precipitated 40 feet down the manway. He died in an hour and thirty minutes after the accident.

September 24, in a mine near Telluride, Silas Cisco, a miner, age 24, while pushing a loaded car over an ore pass which had been uncovered to permit the dumping of ore into the pass, missed his footing and fell 200 feet, killing him instantly.

November 24, Robert M. Sharen, age 67, a mucker employed at a mine in Ouray county, was caught under a fall of rock while mucking in a stope, receiving injuries from which he died two hours later. Our inspection revealed that the accident was the result of his own carelessness and that of his partner in failing to observe instructions to make their working place safe.

December 27, Glen Coy, age 19, employed as a trammer in a mine in Teller county, while engaged in clearing the track of loose rock, was caught under a heavy fall of rock from the back of the drift and instantly killed.

Shaft.

September 6, in a mine in Clear Creek county, Joe Reynolds age 46, a miner, was instantly killed by falling 360 feet down a steep incline shaft. It had been customary, by an understanding between the engineer and the men employed underground, to make two trips with the skip from the level where the miners were working to the lower level at quitting time, so that the men could leave the mine through the lower level. The first trip was made with a number of the men, and in giving the bell signal to hoist the skip back for the other men, through some defect in the electric signal transmission, the engineer received only the one bell signal to bring the skip to the top, though one of the men who was at the bottom claims he gave the usual signal of 5-1 bells. The men thus left in the mine started down the incline shaft on the ladders, with Mr. Reynolds leading; when he reached a point about 35 feet down the shaft a portion of the ladder gave way and he fell to a point near the lower level. He was dead when the men reached him. The coroner's jury returned a verdict of accidental death.

November 20, Ninian Edwards, age 70, a mechanical engineer employed in a mine in Teller county, was killed by falling down a shaft. Edwards was about to step on the skip at the collar of the shaft to go down into the mine when the top man, not noticing him, gave the release signal and the skip immediately descended, carrying Edwards down a distance of 550 feet before the skip was stopped. Edwards incurred injuries from which he died three hours later. This accident was evidently caused by a faulty arrangement of the signal system, which our inspector ordered rectified.

Mill.

March 24, Edgar Thorne, age 42, elevator operator at a mill in San Miguel county, was instantly killed by falling down the elevator shaft. From our investigation it is evident that the accident was the result of his own carelessness, as he failed to make use of the safeguards provided for the loading of the elevator by attempting to carry a heavy box over the greased skidway on which a movable platform for such work operates.

Smelter.

July 16, Anton Menein, age 32, night foreman at a mill at Globeville, was overcome by hydrogen sulphide gas from the gas washing system and died from the effects (at Mercy Hospital) on July 28. Our investigation showed that this accident might have been prevented had the room been properly ventilated by openings in the roof. The only means of ventilation at the time of the accident was a window directly over the wash tanks. Recommendations have been issued to have a proper system of ventilation installed.

September 7, William Ahern, age 44, employed as a carpenter at a smelting plant near Leadville, fell down a flue which was discharging hot gases, receiving injuries which developed into pneumonia, from which he died September 19.

Quarry.

June 8, in Huerfano county, Guadaloupe Soria, age 27, a trammer, while engaged in pushing a loaded bucket of clay was instantly killed by a fall of rock from the roof. Investigation showed that the usual precautions had been employed by the management and that this was the first serious accident in the quarry during the past 18 years.

Dredge.

July 23, Gus Hallen, age 55, while trying to locate a ground in the 1,300-volt cable on a dredge in Summit county, was electrocuted and instantly killed. Under orders from this office, a coroner's inquest was held and the jury found that Mr. Hallen came to his death through negligence on the part of those in charge of the work.

TABLE II

DAYS OF EMPLOYMENT IN AND ABOUT MINES, MILLS AND SMELTERS, AND NUMBER OF MEN
KILLED AND INJURED PER 10,000 DAYS OF EMPLOYMENT DURING THE YEARS 1922 AND 1923

	Employment Days of		Killed		Serious Injury (Time Lost Over 14 Days)			Slight Injury (Time Lost Under 14 days)		
	1922	1923	1922	1923	1922	1923	1922	1922	1923	1923
	No. of Accidents	Rate Per 10,000 Days	No. of Accidents	Rate Per 10,000 Days	No. of Accidents	Rate Per 10,000 Days	No. of Accidents	Rate Per 10,000 Days	No. of Accidents	Rate Per 10,000 Days
Underground	774,065	778,835	15	.1937	16	.2054	171	2.209	220	2.824
Surface	263,354	263,808	1	.0379	...	.....	56	2.126	41	1.554
Mills	397,981	391,390	1	.0251	1	.0255	17	.4271	39	.9964
Smelters	346,700	432,859	1	.0288	2	.0462	24	.6922	50	1.155
Quarries	150,301	160,650	2	.0665	1	.0622	21	1.397	37	2.303
Placer Mines (Dredges)	20,246	20,782	3	.1481	1	.4811	3	1.481	8	3.849
Oil Shale	12,777	10,000	...	.....	...	.....	4	3.13	...	.....
			...	.....	...	.....	...	.....	2	1.565

No. of
Accidents

Rate Per
10,000 Days

No. of
Accidents

Rate Per
10,000 Days

No. of
Accidents

Rate Per
10,000 Days

No. of
Accidents

Rate Per
10,000 Days

No. of
Accidents

Rate Per
10,000 Days

TABLE III

CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1922 AND 1923

	Fatal		Serious Injuries (Time lost over 14 days)			Slight Injuries (Time lost under 14 days)	
	1922	1923	Total Disability 1922 1923	Permanent Disability 1922 1923	Temporary Disability 1922 1923	1922	1923
UNDERGROUND							
1. Falls of rock or ore from roof or walls.....	8	9	...	...	35	43	47
2. Handling of rock or ore—	...	...	...	...	...	...	...
(a) Loading at face.....	...	...	...	...	5	7	9
(b) Loading at chute.....	...	...	...	1	9	15	16
(c) Sledging.....	...	...	...	1	1	4	2
3. Timber or hand tools.....	...	...	...	...	9	14	27
4. Explosives—	...	...	...	...	...	...	...
(a) Transportation.....	...	...	...	...	...	...	...
(b) Charging.....	1	...	...	...	...	...	...
(c) Suffocation.....	...	...	...	...	...	1	...
(d) Drilling into old holes.....	...	...	...	...	...	...	...
(e) Striking in loose rock.....	...	...	...	...	...	...	...
(f) Thawing.....	...	...	...	...	...	...	...
(g) Caps, detonators, etc.....	...	...	...	...	...	2	1
(h) Unguarded shots.....	...	...	...	...	...	1	1
(i) Returned too soon.....	2	...	...	...	1	...	...
(j) Premature shot.....	1	...	...	...	...	...	...
(k) Miscellaneous.....	...	...	...	...	5	...	3
5. Haulage—	...	...	...	...	...	...	...
(a) Hand and animal.....	...	...	...	...	8	10	19
(b) Mechanical.....	...	...	...	...	5	4	5
6. Persons falling down chute, winze, raise or stope.....	2	2	...	...	19	16	19
7. Run of ore from chute or pocket.....	1	1	...	...	...	2	...
8. Drilling (by machine or hand drills).....	...	...	...	2	15	16	26
9. Electricity—	...	...	...	...	...	...	...
(a) Direct contact with trolley wire.....	...	...	...	...	...	...	...
(b) Tool or bar striking trolley wire.....	...	...	...	...	...	...	...
(c) Contact with motor.....	...	...	...	...	...	...	...
(d) Other causes.....	...	...	...	1	...	1	10
10. Machinery other than 5 and 8.....	...	...	...	...	...	10	...
11. Mine fires.....	...	...	...	...	...	...	...
12. Suffocation from natural gases.....	1	...	...	...	...	...	1
13. Inrush of water.....	...	...	...	...	1	...	...
14. Nails and splinters.....	...	...	...	...	1	2	3

15.	Other causes—	...	...	...	...	1	1	18	29	17	39
	(a) Falling objects other than 1 and 2	...	...	...	...	1	1	7	6	19	20
	(b) Flying objects other than 2c	...	...	...	...	...	...	1	3	3	2
	(c) Burns	...	...	...	...	2	...	15	16	20	...
	(d) Miscellaneous	...	...	...	...	...	...	...	...	...	...
	Total	14	14	...	...	4	7	155	199	181	270
	SHAFT										
16.	Falling down shaft	...	2	...	...	...	...	...	2	1	...
17.	Objects falling down shaft	1	...	...	...	...	...	3	2	2	5
18.	Breaking of cables	...	...	...	...	...	...	...	1	1	1
19.	Overwinding	...	...	...	...	...	...	...	...	...	...
20.	Cage, skip or bucket—										
	(a) Runaway	...	...	...	...	...	...	...	...	...	...
	(b) Riding with rock or ore	...	...	...	...	...	...	...	3	...	...
	(c) Riding with timber or tools	...	...	...	...	...	...	2	...	2	1
	(d) Struck by	...	...	...	...	...	...	1	1	1	1
21.	Other causes	...	...	...	...	1	1	5	4	7	4
	Total	1	2	...	...	1	1	10	13	14	14
	SURFACE SHOPS AND PLANTS										
22.	Haulage—										
	(a) Hand and animal	...	...	...	...	...	1	4	3	1	3
	(b) Mechanical	...	...	...	...	...	...	2	2	1	...
23.	Railway cars and locomotives	...	...	...	...	...	...	...	1	...	...
24.	Run or fall of ore in or from bins	...	...	...	...	...	...	...	...	...	...
25.	Falls of persons	1	...	...	...	1	...	14	8	14	12
26.	Nails and splinters	...	...	...	...	...	...	...	1	...	3
27.	Hand tools, axes, bars, etc.	...	...	...	...	...	...	6	4	2	6
28.	Electricity—										
	(a) Direct contact with trolley wire	...	...	...	...	...	...	...	...	...	...
	(b) Tool or bar striking trolley wire	...	...	...	...	...	...	...	...	...	...
	(c) Contact with motor	...	...	...	...	...	...	2	1	...	...
	(d) Other causes	...	...	...	...	...	...	4	4	3	3
29.	Machinery	...	...	...	...	...	...	...	...	...	...
30.	Other causes—										
	(a) Falling objects	...	...	...	...	...	...	12	9	6	8
	(b) Flying objects	...	...	...	...	...	1	1	2	3	8
	(c) Burns	...	...	...	...	...	...	...	1	5	...
	(d) Miscellaneous	...	...	...	...	...	...	10	3	8	7
	Total	1	...	...	...	1	2	55	39	38	55

SURFACE SHOPS AND PLANTS

[illegible]

CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1922 AND 1923.—Continued.

	Fatal		Permanent Total		Serious Injuries (Time lost over 14 days)		Slight Injuries (Time lost under 14 days)
	1922	1923	Disability 1922	Disability 1923	Temporary Disability 1922 1923		
					1922	1923	
PLACER MINES—DREDGING							
1. Machinery	1	1	...	...	...	1	4
2. Electricity	...	...	...	...	...	...	...
3. Boiler explosions or bursting of steam pipes	...	...	...	...	...	...	...
4. Falls of persons	...	...	...	...	2	3	1
5. Hand tools	...	...	...	...	...	...	7
6. Other causes	2	...	...	1	1	3	7
Total	3	1	...	1	3	7	14
ORE DRESSING AND MILLING							
1. Haulage system—	...	...	...	...	...	...	...
(a) Cars and motors	...	...	...	...	1	1	3
(b) Mechanical conveyors	...	...	...	...	1	...	...
2. Railway cars and locomotives	...	...	...	...	...	...	...
3. Crushers, rolls or stamps	...	...	...	...	...	...	...
4. Tables, jigs, etc.	...	...	...	...	...	...	...
5. Other machinery	...	...	...	...	...	...	...
6. Falls of persons	...	...	...	1	...	6	2
7. Suffocation in ore bins	1	...	...	1	2	7	8
8. Falling objects (rocks, timber, etc.)	...	...	...	...	...	...	...
9. Cyanide or other poisoning	...	...	...	...	1	5	4
10. Scalding (steam or water)	...	...	...	...	...	...	...
11. Electricity	...	...	...	...	...	...	...
12. Hand tools, axes, bars, etc.	1	...	...	...	...	3	1
13. Nails, splinters, etc.	...	...	...	...	1	2	5
14. Flying pieces of rock from sledging or crushing	...	...	...	...	...	2	2
15. Other causes	...	...	...	...	1	1	1
Total	1	1	...	1	9	7	5
SMELTER							
16. Haulage system—	...	...	...	...	16	38	31
(a) Cars and motors	...	...	...	...	1	3	4
(b) Mechanical conveyors	...	...	...	...	...	...	...
(c) Hand and animal	...	...	...	...	...	...	...

17.	Railway cars and locomotives.....	....	....	....	....	1	....
18.	Cranes.....	....	....	....	....	1	....
19.	Other machinery.....	....	....	....	....	3	5
20.	Falls of persons.....	....	1	....	....	3	7
21.	Suffocation in ore bins.....	....	....	....	....	1	5
22.	Flying or falling objects (rocks, timbers, etc.).....	....	....	....	....	3	4
23.	Gas (burns or asphyxiation).....	2	....	....	....	1	....
24.	Scalding (steam or water).....	....	....	....	....	....	....
25.	Electricity.....	1	....	....	....	....	1
26.	Hand tools, axes, bars, etc.....	....	....	....	....	....	7
27.	Nails, splinters, etc.....	....	3	....	....	2	5
28.	Burns from matte, slag, or molten metal (pouring or spilling).....	....	....	....	....	1	6
29.	Hot metal explosions.....	....	....	....	....	2	2
30.	Other causes.....	....	....	....	5	9	7
	Total.....	1	2	....	....	39	46
	AUXILIARY WORKS.....	....	....	....	....	17	95
31.	Haulage systems.....	....	....	....	....	....	....
32.	Railway cars and locomotives.....	....	....	....	....	1	2
33.	Falls of persons.....	....	....	....	....	1	6
34.	Falling objects (rocks, timbers, etc.).....	....	....	....	....	2	2
35.	Nails, splinters, etc.....	....	....	....	....	....	1
36.	Hand tools, axes, bars, etc.....	....	....	....	....	4	....
37.	Electricity.....	....	....	....	....	....	....
38.	Machinery.....	....	....	....	....	....	....
39.	Failure of ladder, scaffold, or other support.....	....	....	....	....	....	....
40.	Handling hot materials.....	....	....	....	....	1	3
41.	Other causes.....	....	....	....	....	2	3
	Total.....	....	....	....	....	4	13
	IN AND ABOUT QUARRY.....	....	....	....	....	....	....
1.	Falls or slides of rock or overburden.....	1	....	....	....	5	3
2.	Handling rock at face.....	....	....	....	....	3	3
3.	Timber or hand tools.....	....	....	....	....	3	7
4.	Explosives— (a) Transportation..... (b) Charging..... (c) Drilling into old holes..... (d) Striking in loose rock..... (e) Thawing..... (f) Caps, detonators, etc..... (g) Unguarded shots..... (h) Returned too soon..... (i) Premature shot..... (j) Delayed blast..... (k) Miscellaneous.....	....	....	....	....	....	....
	Total.....	....	....	....	....	....	....

CLASSIFICATION ACCORDING TO CAUSE AND OCCUPATION OF THE FATAL ACCIDENTS THAT OCCURRED IN THE METAL MINING AND QUARRYING INDUSTRY OF COLORADO IN THE YEARS 1922 AND 1923—Continued

SURFACE ACCIDENTS

	Superintend- ents and Foremen 1922 1923	Engineers and Hoistmen 1922 1923	Blacksmiths and Mechanics 1922 1923	Carpen- ters and Topmen 1922 1923	Elec- tricians 1922 1923	Others 1922 1923
22. Haulage.....
23. Railway cars and locomotives.....
24. Run or fall of ore in or from ore bins.....
25. Fall of persons.....	1
26. Nails and splinters.....
27. Hand tools, axes, bars, etc.....
28. Electricity.....
29. Machinery.....
30. Other causes.....	—	—	—	—	—	—
Total.....	—	—	—	—	—	1

MILLS

	Super- intend- ents and Foremen 1922 1923	Grinding Machinery Men and Millmen 1922 1923	Concen- trator Men 1922 1923	Laborers 1922 1923	Carpenters and Mechanics 1922 1923	Aerial Tram Men and Conveyor Men 1922 1923
1. Haulage system.....
2. Railway cars and locomotives.....
3. Crushers, rollers or stamps.....
4. Tables, jigs, etc.....
5. Other machinery.....
6. Falls of persons.....	1	...	...
7. Suffocation in ore bins.....
8. Falling objects (rocks, timbers, etc.).....
9. Cyanide or other poisoning.....
10. Scalding (steam or water).....
11. Electricity.....	1	...
12. Hand tools, axes, bars, etc.....
13. Nails, splinters, etc.....
14. Flying pieces of rock from sledging or crushing.....
15. Other causes.....	—	—	—	—	—	—
Total.....	—	—	—	1	1	—

SMELTERS

	Superintend- ents and Foremen 1922 1923	Laborers 1922 1923	Motormen and Switchmen 1922 1923	Feeder and Charge Wheelers 1922 1923
1. Haulage system
2. Railway cars and locomotives
3. Cranes
4. Other machinery
5. Falls of persons
6. Suffocation in ore bins
7. Flying or falling objects	1	1	...	...
8. Gas (burns or asphyxiation)
9. Scalding (steam or water)	1	1	...	...
10. Electricity
11. Hand tools, axes, bars, etc.
12. Nails, splinters, etc.
13. Burns from matte, slag or molten metal (pouring or spilling)
14. Hot metal explosions
15. Other causes	1	...	...
Total	1	1	...	...

QUARRIES, CLAY PITS AND OIL SHALE MINES

	Superintend- ents and Foremen 1922 1923	Teamsters 1922 1923	Drillmen 1922 1923	Laborers 1922 1923
1. Haulage
2. Machinery	1	1
3. Other causes
Total	1	1

	Miners 1922 1923	Dredgemen 1922 1923	Laborers 1922 1923
1. Machinery .....	...	...	...
2. Electricity .....	...	1	1
3. Other causes	1	...	1
Total	1	1	1

PLACERS AND DREDGES

OPERATING MINES IN BOULDER COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Alice (a)	Jamestown	Charles Mohr & Co.	Jamestown	Fluorspar
Arapahoe (a)	Ward	Geo. L. Ross and H. F. Thellin	Ward	Gold, Sil., Cop. (c)
Big Horn	Salina	Geo. H. Pomeroy	Salina	Gold, Sil., Lead (c)
Black Diamond (a)	Nederland	C. L. Stewart	Nederland	Tungsten (c)
Blue Jay	Jamestown	H. S. Vickery	Jamestown	Fluorspar
Blue Ribbon (a)	Crisman	Carlson and King	Crisman	Gold, Silver
Bonanza (a)	Nederland	Wolf Tongue Mining Co.	Boulder	Tungsten
Boulder County Tunnel				
and Caribou	Cardinal	Caribou Metals Co.	Boulder	Gold, Silver, Lead
Castle Placer (a)	Jamestown	Matt Herchen	Springdale	Gold, Silver (c)
Castle Tunnel (a)	Jamestown	Matt Herchen	Springdale	Gold, Silver (c)
Cold Spring and Cold Spring No. 2 (a)				
Consolation (a)	Nederland	Wolf Tongue Mining Co.	Boulder	Tungsten
Cross (a)	Jamestown	John Evans	Jamestown	Fluorspar
Durias (a)	Nederland	Wolf Tongue Mining Co.	Boulder	Tungsten
East Side and Lamar	Jamestown	C. W. Gordon	Jamestown	Gold, Silver (c)
Elk Head (a)	Eldora	W. J. and J. P. Sullivan	Eldora	Gold, Silver (c)
Equator (a)	Jamestown	Matt Herchen and Assoc.	Springdale	Gold, Silver (c)
Evans (a)	Salina	Tower and Walker	Jamestown	Gold, Silver
Fairfax (a)	Salina	H. W. Nicholls	Salina	Gold, Sil., Lead (c)
Fortune	Magnolia	Walsrom & Co.	Boulder	Gold, Silver (c)
Garfield (a)	Ward	Geo. P. and Julia E. Sale	Magnolia	Gold, Silver
Goldsmith Maid (a)	Summerville	Mrs. Sarah Weiss	Ward	Gold, Silver, Lead
Gray Bird (a)	Ward	Newell-McIntyre	405 Barnett Bldg., Denver	Gold, Silver, Lead
Great Britain (a)	Gold Hill	Ernest Graham	Ward	Gold, Silver
Horsfal	Gold Hill	Associated Leasing Co.	Gold Hill	Gold, Sil., Cop. (c)
Huron	Gold Hill	W. L. McCaslin	Longmont	Gold, Sil., Cop. (c)
Independent (a)	Eldora	Huron Gold Ores Co.	404 Cooper Bldg., Denver	Gold, Silver (c)
Iron Age	Boulder	A. F. Empfield	Boulder	Tungsten
Jumbo	Magnolia	M. C. Morrison	Boulder	Tungsten
KeKeOnga	Jamestown	Saint and Markt	Jamestown	Fluorspar
Kicker (a)	Magnolia	J. L. Blanch	U. S. Nat. Bk. Bldg., Denver	Tungsten (c)
Last Chance (a)	Nederland	Wolf Tongue Mining Co.	Boulder	Tungsten
Little Johnnie	Nederland	Wolf Tongue Mining Co.	Boulder	Tungsten
Logan	Salina	Little Johnnie M. and M. Co.	Salina	Gold, Silver
Mary Olive (a)	Crisman	Logan Metals Co.	Boulder	Gold, Silver (c)
Morning Star	Eldora	H. E. Baker	3519 Newton St., Denver	Gold, Silver (c)
Myrtle	Gold Hill	Morning Star Co.	854 Sherman Blvd., Milwaukee, Wis.	Gold
Nations Treasure (a)	Gold Hill	Providence M. and M. Co.	2684 S. Broadway, Denver	Gold, Silver
Oklahoma (a)	Boulder	E. R. Terry	Jamestown	Fluorspar
		Frank Rhoades	Boulder	Gold, Silver, Lead, Tungsten
Platteville (a)	Eldora	Samuel H. Deirks	1321 Logan St., Denver	Gold, Silver (c)

Potosi.....	Caribou.....	The Potosi-Caribou Mining Co.....	188 Market St., Newark, N. J.....	Gold, Silver, Lead, Copper
Ready Cash (a).....	Summerville.....	John W. Kirkbride & Co.....	2341 18th St., Boulder.....	Gold, Silver (c)
Red Sign (a).....	Boulder.....	Fred Weeks.....	Boulder.....	Gold, Silver, Lead, Tungsten
Richmond (a).....	Salina.....	H. H. McDaniel.....	Salina.....	Gold, Silver (c)
Ruby (a).....	Ward.....	M. E. Vale & Co.....	Ward.....	Gold, Silver
Shirley.....	Tungsten.....	J. B. Rowley.....	Eldora.....	Gold (c)
Snowbound (a).....	Gold Hill.....	Snow Bound Mining Co.....	Gold Hill.....	Gold, Silver (c)
	Ward.....	J. L. Tarbox.....	Clayton, Ill.....	Gold, Silver (c)
Two Sisters (a).....	Gold Hill.....	S. N. Davidson.....	Gold Hill.....	Gold, Silver (c)
Vasco (m).....	Tungsten.....	Vasco Mining Co.....	Boulder.....	Tungsten
White Crow and Osceola.....	Sunshine.....	Nil Desperandum Mines Co.....	Citizens Nat Bank, Boulder.....	Gold, Silver (c)
Witter.....	Crisman.....	Jacob Witter.....	2923 Inca St., Denver.....	Gold, Silver (c)
Wood Mountain (m).....	Wallstreet.....	Wood Mountain Mines Co.....	Wallstreet.....	Gold, Silver
Yellow Pine.....	Crisman.....	Yellow Pine Mines and Red Co.....	Boulder.....	Gold, Silver, Lead, Copper

OPERATING MINES IN CHAFFEE COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Gladstone.....	Buena Vista.....	Gladstone Mines Co.....	Buena Vista.....	Sil., Lead, Cop.
Lilly.....	Garfield.....	Garfield Mines and Reduction Co.....	Garfield.....	Gold, Silver, Lead
Mary Murphy.....	Romley.....	Mary Murphy Gold Mining Co.....	307 Boston Bldg., Denver.....	Gold, Silver, Lead, Copper, Zinc
Sedalia.....	Salida.....	Sedalia Copper Co.....	Box 594, Salida.....	Gold, Silver, Cop., Zinc

OPERATING MINES IN CLEAR CREEK COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
A. C. A. Lode (a).....	Empire.....	P. McDonough and C. Ketterer.....	3035 W. Clyde Place, Denver.....	Gold, Sil., Cop. (c)
Albro (a).....	Dumont.....	Albro Leasing Co.....	Dumont.....	Gold, Silver, Lead, Copper
Alexander (a).....	Idaho Springs.....	Geo. Minier and Wilfred Forgett.....	Idaho Springs.....	Gold, Silver
Argo.....	Idaho Springs.....	Stude-Marie Mining Co.....	Idaho Springs.....	Gold, Silver, Lead
Bear Creek and Little				
Boss Tunnel.....	Idaho Springs.....	Bean & Co.....	Idaho Springs.....	Gold, Silver, Cop.
Back Bone (a).....	Silver Plume.....	Meyer Rosenberg.....	Silver Plume.....	Gold, Silver Lead
Bellvue Sharp.....	Idaho Springs.....	Becky Sharp Lease.....	Idaho Springs.....	Gold, Sil., Cop. (c)
Big Chance.....	Empire.....	L. W. Tagarden.....	Idaho Springs.....	Gold, Silver, Lead
Big Five Tunnel.....	Lawson.....	Porter & Co.....	Georgetown.....	Gold, Silver, Lead
	Idaho Springs.....	Big Five Mining Co.....	405 Interstate Trust Bldg., Denver.....	Gold, Silver, Lead

(a) Operated for part of the year only. (c) No production in 1923. (m) Mill operated in connection with mine.

OPERATING MINES IN CLEAR CREEK COUNTY, 1923.—Continued.

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Boston and Clear Creek	Georgetown	Boston and Clear Creek	Mg. Co. Georgetown	Gold, Silver, Lead, Copper (c)
Brazil	Idaho Springs	B. J. Foley and Wm. Morgan	Idaho Springs	Gold, Sil., Lead (c)
Calvin and Remington	Idaho Springs	Social Six Mining Co.	2241 W. 34th Ave., Denver	Gold, Silver (c)
Capital	Georgetown	Capital Mining and Milling Co.	50 Congress St., Boston, Mass.	Gold, Silver, Lead, Zinc
Challenge, etc. (a)	Empire	Kenneth T. Sharpe	Empire	Gold, Silver (c)
Champion	Alice	George A. Reynolds	Alice	Gold
Charter Oak	Idaho Springs	Charter Oak-Chancellor M. and M. Co.	Pioneer, Ohio	Gold, Silver (c)
Clara (a)	Alice	Henry J. Walden	Alice	Gold, Sil., Cop. (c)
Clear Creek and Gilpin Tunnel (a)	Dumont	Corporation of American Mines	50 Broad St., New York, N. Y.	Gold, Silver, Lead, Copper, Zinc (c)
Cleveland-Silverwing (a)	Lawson	Smith Lawson Co.	Lawson	Gold, Sil., Lead (c)
Colorado Extension (a)	Georgetown	William Hutton	Georgetown	Gold, Silver, Lead, Copper
Columbine Tunnel (a)	Empire	Kenneth T. Sharpe	Empire	Gold, Sil., Lead (c)
Commodore (a)	Lawson	H. E. Minier	Lawson	Gold, Sil., Lead (c)
Croesus (a)	Silver Plume	David Collins and Assoc.	Silver Plume	Gold, Sil., Lead (c)
Crown Point, Virginia and Bantalla	Idaho Springs	Caney Oil-Mines Co.	Box 61, Idaho Springs	Gold, Silver
Davenport Tunnel (a)	Georgetown	Venus Mining Co.	Georgetown	Gold, Silver, Lead, Zinc
Denver Tunnel	Georgetown	The Metals Tunnel Co.	2555 W. 37th Ave., Denver	Gold, Sil., Lead (c)
Dives Seven Thirty	Silver Plume	East Butte Copper Mining Co.	317 Railway Exchange Bldg., Denver	Silver, Lead
Dominion (a)	Idaho Springs	Rice Brothers	Idaho Springs	Gold, Silver, Cop.
Empire Cons. (a)	Empire	Empire Cons. Mines, Inc.	Empire	Gold, Silver, Cop.
Esmeralda (a)	Idaho Springs	Oscar Haist	Idaho Springs	Gold, Silver
Food Cliff	Empire	Geo. D. Evernden Co.	2004 Live Oak St., Dallas, Texas	Gold, Sil., Cop. (c)
Frank J. Hayes Group	Idaho Springs	Frank J. Hayes Mining Co.	220 U. S. Nat. Bank Bldg., Denver	Gold, Silver
Freeland and Turner	Idaho Springs	United Freeland Dev. and T. Co.	Idaho Springs	Gold, Silver, Lead, Copper, Zinc
Freeman (a)	Idaho Springs	C. A. Swanson	Idaho Springs	Gold, Silver, Lead
Gem	Idaho Springs	Gem Mining Co.	Idaho Springs	Gold, Silver (c)
Gold Belt	Silver Plume	Elmwood Mtn. and Exploration Co.	Silver Plume and Elmwood, Neb.	Gold, Silver, Lead, Zinc
Gold Dollar Tunnel	Alice	Nick Klaes	Alice	Gold, Silver, Lead, Copper (c)
Gold Glen (a)	Idaho Springs	Gold Glen M., M and T. Co.	Idaho Springs	Gold, Silver, Lead

Gold Valley (a).....	Lawson.....	Columbian Mtn. M. and L. Co.....	2018 California St., Denver.....	Gold, Sil., Lead (c)
Golden Eagle, etc (a).....	Idaho Springs.....	G. L. Brown.....	Idaho Springs.....	Gold, Silver (c)
Golden Edge (a).....	Idaho Springs.....	Golden Edge Mines Co.....	Idaho Springs.....	Gold, Silver, Lead, Copper
Golden Empire.....	Empire.....	Golden Empire Mining Co.....	205 Commonwealth Bldg., Denver.....	Gold, Silver, Lead, Copper, Zinc (c)
Hamill Tunnel.....	Silver Plume.....	Hamill Mining and Tunnel Co.....	Silver Plume.....	Gold, Sil., Lead (c)
Hidden Treasure.....	Idaho Springs.....	Treasure Vault Mining Co.....	Dennham Bldg., Denver.....	Gold, Silver, Lead
Hudson Mill.....	Idaho Springs.....	H. E. Machol.....	Idaho Springs.....	Gold, Silver, Lead
Jo Reynolds.....	Lawson.....	L. E. Smutz.....	Laclede Bldg., St. Louis, Mo.....	Silver, Lead
Lee (a).....	Dumont.....	Lee M. and M. Co.....	Dumont.....	Gold, Silver, Lead
Lincoln.....	Idaho Springs.....	Lincoln M. and M. Co.....	Dayton, Ohio.....	Copper
Lombard (a).....	Idaho Springs.....	Tonopah Colorado Leasing Co.....	570 Bullitt Bldg., Philadelphia, Pa.....	Gold, Silver
Lucky Find.....	Dumont.....	Wm. Burns & Co.....	Dumont.....	Gold, Silver, Lead, Zinc
Mattie (a) (m).....	Idaho Springs.....	Mattie Cons. Mines, Inc.....	First Nat. Bk. Bldg., Denver.....	Gold, Silver, Lead, Copper
Mattie Jack (a).....	Dumont.....	B. L. Groth & Co.....	Dumont.....	Gold, Silver, Lead
Mendota (a).....	Silver Plume.....	Wasatch Colorado Mining Co.....	Silver Plume.....	Gold, Silver, Lead, Zinc
Meteor.....	Alice.....	George A. Reynolds.....	Alice.....	Gold, Silver
Millington.....	Dumont.....	Millington G. M. and M. Co.....	Dumont.....	Gold, Silver
Molly Bawn, etc.....	Empire.....	Molly Bawn Mines.....	Empire.....	Gold, Sil., Cop. (c)
National (a).....	Silver Plume.....	National Mining Co.....	Silver Plume.....	Gold, Silver, Lead, Zinc
Neglected (a).....	Freeland.....	Charles Olson.....	Idaho Springs.....	Gold, Silver, Lead
Nimrod (a).....	Cassells.....	Freund and Hunter.....	910 26th St., Denver.....	Gold, Silver, Lead, Gold, Silver, Lead, Copper (c)
O. S. Storrs.....	Empire.....	J. A. Heim and Assoc.....	Empire.....	Gold, Sil., Cop. (c)
Old Stone Wall (a).....	Alice.....	Thomas Minner.....	Alice.....	Gold, Silver, Lead, Copper
Oriental Tunnel (a).....	Georgetown.....	H. L. Sealander.....	Georgetown.....	Gold, Sil., Lead (c)
Orinoco (a).....	Idaho Springs.....	Surety Gold Mining Co.....	Idaho Springs.....	Gold, Sil., Lead (c)
Ottawa (a).....	Alice.....	John F. Kaminky.....	Alice.....	Gold, Silver, Lead, Copper, Zinc (c)
Pay Streak (a).....	Georgetown.....	William Hunter.....	Georgetown.....	Gold, Silver, Lead, Copper
Platts' Big Chance.....	Lawson.....	Smith Lawson Co.....	Lawson.....	Gold, Silver, Lead, Copper, Zinc
Rainbow Tunnel.....	Georgetown.....	Rainbow Mining Co.....	Georgetown.....	Gold, Sil., Lead (c)
St. George (m).....	Georgetown.....	St. George Mine, Inc.....	30 Broad St., New York, N. Y.....	Gold, Silver, Lead, Zinc
Santiago.....	Georgetown.....	Argentine-Santiago M. and M. Co.....	Georgetown.....	Gold, Silver, Lead, Copper
Senator.....	Dumont.....	Himes Leasing Co.....	53 Hyde Park Blvd., Chicago, Ill.....	Gold, Silver, Lead

(a) Operated for part of the year only. (c) No production in 1923. (m) Mill operated in connection with mine.

OPERATING MINES IN CLEAR CREEK COUNTY, 1923.—Continued.

Name of Mine	Location of Mine	Operator	Mine in charge	P. O. Address	Character of Product
Sidney Tunnel (a)	Georgetown	M. Sidney	in charge	Georgetown	Gold, Silver, Lead Copper, Zinc (c)
Silent Friend (a)	Idaho Springs	Friend Mining Co		Idaho Springs	Gold, Silver, Cop.
Silver King	Dumont	Henry Bolthoff		1807 Emerson St., Denver	Gold, Silver, Lead Copper (c)
Silver Leaf and Mammoth	Silver Plume	Frank Watrous		Silver Plume	Gold, Silver, Lead
Silver Mountain	Georgetown	Nelson Leasing and Dev. Co.		Empire	Gold, Silver, Cop.
Silver Queen (a)	Cassells	J. F. Kimberly and J. L. Henritzz		Cassells	Gold, Sil., Lead (c)
Silver Queen	Idaho Springs	Surety Gold Mining Co.		Idaho Springs	Gold, Sil., Lead (c)
Star Tunnel (a)	Idaho Springs	J. H. Short		2448 Irving St., Denver	Gold, Silver, Lead
Sunburst-Sceptre	Georgetown	Sceptre Mines and Mills Co.		35 Congress St., Boston	Silver, Lead
Sun-Dog (a)	Silver Plume	Buckley Bros.		Silver Plume	Gold, Sil., Lead (c)
Swan	Idaho Springs	Swan M. and M. Co.		440 S. Pearl St., Denver	Gold, Silver, Lead, Zinc
Tom Moore (a)	Lawson	Tom Moore M. and M. Co.		310 Colorado Bldg., Denver	Gold, Silver (c)
Waldorf	Georgetown	Palisade Copper Co.		Cheney Bldg., Kumford, Me.	Gold, Silver, Zinc (c)
Yukon Girl (a)	Idaho Springs	D. A. Barry		Idaho Springs	Gold, Silver, Lead
Zero Tunnel	Silver Plume	East Butte Copper Mining Co.		317 Railway Exchange Bldg., Denver	Gold, Silver, Lead, Zinc

OPERATING MINES IN CUSTER COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Bassick Cyanide Mill	Querida	Alaska Gold M. and M. Co.	Silver Cliff	(c)
Ben Eaton	Rosita	Silverado Ore Co.	411 Temple Court, Denver	(c)
Cloverdale	Hillside	Cloverdale Mines Co.	Hillside	(c)
Comstock Tunnel	Querida	Bassick Extension Mining Corp.	4633 a Delmar Blvd., St. Louis, Mo.	(c)
Lambertine	Querida	The G. F. Mining Associates	943 Claremont Ave., Pueblo	(c)
Last Quarter (a)	Westcliffe	Henry J. Arnold	411 Temple Court, Denver	(c)
Ophir Creek (a)	Ophir Creek	Ophir Creek Gold M. and M. Co.	Florence	(c)
Skek City	Westcliffe	Bassick Extension Mining Corp.	4633 a Delmar Blvd., St. Louis, Mo.	(c)
Ten to One (a)	Westcliffe	Vidler and Ryan	Westcliffe	Gold, Silver, Lead
Terrible	Ilse	Colorado Lead Products Co.	Ilse	Lead

OPERATING MINES IN DOLORES COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Emma	Coke Owens	Joseph Fico and Assoc.	Telluride	Gold, Silver
Falcon, etc.	Fico	Falcon Syndicate	Rico	Gold, Silver, Lead, Copper, Zinc
Smuggler	Dunton	Mt. Pleasant Mining Co.	Denver	Gold, Silver (c)

OPERATING MINES IN EAGLE COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Eagle	Gilman	The Empire Zinc Co.	160 Front St., New York, N. Y.	Gold, Silver, Zinc, Manganese
Polar Star	Eagle	Polar Star Mining Co.	Eagle	Gold, Silver

OPERATING TUNNELS IN GARFIELD COUNTY, 1923

Name of Tunnel	Location	Operator	P. O. Address	Character of Product
Glenwood Tunnel	Glenwood Springs	White and Johnson	Chamber of Commerce Bldg., Denver	

OPERATING MINES IN GILPIN COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
American Eagle	Central City	Bradford Mines	Central City	Silver, Lead (c)
Annie Lode (a)	Blackhawk	Otto Ruttkamp	Blackhawk	Gold, Sil., Lead (c)
Atkinson (a)	Central City	Fred Benymann	Arvada	Gold, Silver, Cop.
Atlantic (a)	Hughesville	Denver Mining Pool Co.	1424 16th St., Denver	Silver, Lead
Black Jack	Blackhawk	Silver Mountain Mining Co.	1840 California St., Denver	Gold, Silver, Lead, Zinc
Bonny	Central City	Claud McKay & Co.	Blackhawk	Gold, Silver, Lead
Bryan-Wheeler	Blackhawk	O. C. Redick Mining Co.	Omaha, Neb.	Gold, Silver, Lead, Zinc
Cape Cod (a)	Blackhawk	Charles Wooldridge	Golden	Gold, Silver, Lead
Champion	Blackhawk	Geo. S. Hewes	Blackhawk	Gold, Silver, Lead
Clare Marie (a)	Central City	Colorado Pacific Mining Co.	Central City	Gold, Silver, Lead, Zinc
Cleveland (a)	Blackhawk	Floss Brothers	Blackhawk	Gold, Silver, Lead
Colorado Tunnel (a)	Rollinsville	Comstock M. and M. Co.	Rollinsville	Gold, Silver, Cop.
Columbia Tunnel (a)	Central City	Moser & Co.	Box 511, Central City	Gold, Silver, Cop.
Cornucopia (a)	Central City	Cornucopia M. and M. Co.	Blackhawk	Gold, Silver, Cop.
Cyclops (a)	Blackhawk	Midwest M. and M. Co.	Blackhawk	Gold, Silver, Lead
East Williams (a)	Blackhawk	H. H. Hoffman & Co.	Central City	Silver, Lead
Etna (a) (m)	Central City	Light and Sullivan	Central City	Gold, Silver, Lead, Copper, Zinc
Evergreen	Apex	Evergreen Mines Co.	408 Empire Bldg., Denver	Gold, Sil., Cop. (c)

(m) Mill operated in connection with mine.

(c) No production in 1923.

(a) Operated for part of the year only.

OPERATING MINES IN GILPIN, 1923.—Continued.

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Fairburn Lode (a)	Blackhawk	Otto Rutkamp	Blackhawk	Gold, Sil., Lead (c)
Fairfield	Russell Gulch	Fairfield Mine, J. C. F. Webb	Russell Gulch	Gold, Silver, Cop.
Gold Ledge (a)	Central City	Gold Ledge Mining Co.	Central City	Gold, Silver
Greenside (a)	Central City	Lampshire & Co.	Central City	Gold, Silver, Lead, Zinc
Jennie Blanche (a)	Blackhawk	Richards and Saunders	Blackhawk	Gold, Silver, Lead, Zinc
Jupiter-St. Clair	Russell Gulch	Jupiter-St. Clair Mining Co.	806 E. and C. Bldg., Denver	Gold, Silver, Cop.
Keystone-Bates (a)	Blackhawk	Otto Rutkamp	Blackhawk	Gold, Sil., Lead (c)
Lillian (a)	Russell Gulch	Kingston Mining Co.	209 McMan Bldg., Denver	Gold, Silver, Cop.
Maryland Tunnel (a)	Rollinsville	Maryland Mines and Reduction Co.	611 18th St., Denver	Gold, Sil., Cop. (c)
Mocking Bird (a)	Rollinsville	Barndt and Kuehne L. and H. Synd.	Rollinsville	Gold, Silver, Cop.
Monarch (a)	Rollinsville	S-O-N Mining Co.	Centerville, Iowa	Gold, Silver (c)
Pennsylvania (a)	Central City	H. H. Wherry	Blackhawk	Gold, Silver, Lead
Penobscot (a)	Rollinsville	Comstock M. and M. Co.	Rollinsville	Gold, Silver, Lead, Copper
Perigo (a)	Rollinsville	Perigo M. and M. Co.	Rollinsville	Gold, Silver, Cop.
Rara Avis	Central City	Stephen Hoskins	2141 Gilpin St., Denver	Silver, Lead
Russell	Russell Gulch	The Thelma Leasing Co.	Russell Gulch	Gold, Silver, Cop.
Saco De Oro (a)	Apex	Saco De Oro M. and M. Co.	511 Mack Bldg., Denver	Gold, Silver (c)
Scenator	Rollinsville	L. Liberman	Central City	Gold, Silver, Lead
Seven Thirty (a)	Rollinsville	John Hilton	Rollinsville	Gold, Silver, Cop.
Smuggler (a) (m)	Rollinsville	New Life M. and M. Corp.	7 Water St., Boston, Mass.	Gold, Sil., Cop. (c)
Spotted Horse (a)	Rollinsville	Turney and Williams	Rollinsville	Gold, Sil., Lead (c)
Spur Daisy (a)	Central City	D. H. Yoho	Box 133, Central City	Gold, Silver
Tip Top (a)	Rollinsville	Tip Top Gold Dredging Co.	434 Commonwealth Bldg., Denver	Gold, Silver, Lead, Copper, Zinc
Two Lassies	Central City	Anderson Bros., Inc.	Central City	Gold, Silver, Cop.
Wahn, etc.	Central City	Alice-Theora Mining Co.	Central City	

OPERATING MINES IN GRAND COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Happy Dream	Parshall	C. B. Wider	Parshall	Gold, Copper (c)
Ready Cash	Empire	Helping Hand M. and M. Development Co.	336 Gas and Elec. Bldg., Denver	Silver, Lead (c)
W. I. M. Tunnel	Empire	Coop. Metal Mines Co.	Empire	Gold, Silver (c)

OPERATING MINES IN GUNNISON COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Akron	Whitepine	Akron Mines	Whitepine	Silver, Lead, Zinc
Carter	Ohio	The Carter Mines Company	Ohio	Gold, Silver
Gold Cup (a)	Pitkin	Gold Cup M. and R. Co.	Pitkin	Gold
Good Hope (a)	Jola	Good Hope Mining and Reduction Co.	Jola	Gold, Silver, Cop.
Morning Star	Whitepine	Morning Star Mines Dev. Co.	Gunnison	Gold, Silver
Roosevelt	Pitkin	Roosevelt Mines and Elec. Co.	Pitkin	Gold
Tennessee Shaft, etc.	Pitkin	Tennessee-Colorado Development Co.	Jacksonville, Tenn.	Gold (c)
Victor	Whitepine	Victor Lease	Whitepine	Silver, Lead, Zinc
White Iron	Sapinero	White Iron Ores and Products Co.	Sapinero	Gold, Sil., Cop., Iron

OPERATING MINES IN HINSDALE COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Belle of the East	Lake City	Lucky Day M. and M. Co.	Lake City	Gold, Silver
Belle of the West	Lake City	Belle of the West Mining Co.	Lake City	Gold, Silver, Lead, Copper, Zinc
Black Wonder	Lake City	Colo. Cons. M. and P. Co.	Lake City	Gold, Silver
Fanny Fern	Lake City	Fanny Fern Mining Co.	Lake City	Gold, Silver, Lead, Zinc
General Sherman	Lake City	A. Andrik and John Ilgaudes	Lake City	Gold, Silver (c)
George III	Lake City	George III Mines Company	1006 Patterson Bldg., Denver	Gold, Silver (c)
Golconda	Lake City	Golconda Mines Cons. Inc.	Lake City	Gold, Silver
Golden Fleece	Lake City	Golden Fleece T. M. and L. Co.	Lake City	Gold, Silver (c)
Hidden Treasure	Lake City	McCarthy Hidden Treasure Mg. Corp.	726 World Herald Bldg., Omaha, Nebraska	Silver, Lead (c)
Lead	Lake City	John Ilgaudes	Lake City	Gold, Silver
Lellie	Lake City	Silvermane Mines Company	Lake City	Silver, Lead (c)
Lucky Day Mill	Lake City	Lucky Day Mines and Milling Co.	Lake City	Gold, Silver
Silver Key	Lake City	J. S. Atkins and Assoc.	Lake City	Gold, Silver
Wyoming	Lake City	H. E. Fulghum and Assoc.	Ouray	Silver, Lead, Zinc

OPERATING MINES IN JACKSON COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Colorado Fluorspar	Cowdrey	Colorado Fluorspar Corporation	Cowdrey	Fluorspar

(a) Operated for part of the year only. (c) No production in 1923. (m) Mill operated in connection with mine.

OPERATING MINES IN LAKE COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
A. V. Shaft	Leadville	George Curtis and Assoc.	119 East 8th St., Leadville	Manganese
A. Y. and Minnie (a)	Leadville	Bartell Lease	406 East 7th St., Leadville	Silver, Iron
Adelaide Tunnel (a)	Adelaide Park	Adelaide Mining Company	Leadville	Silver, Lead
Blaine	Leadville	Forrest City Lease	100 East 10th St., Leadville	Zinc
Canterbury Tunnel	Leadville	Leadville Mine Development Co.	Box 603, Leadville	Silver, Iron (c)
Chrysolite No. 4	Leadville	John Holden	212 East 4th St., Leadville	Silver, Lead
Dinero	Leadville	Inez Mining Company	Leadville	Gold, Silver
Down Town	Leadville	Down Town Mines Co.	Leadville	Gold, Sil., Lead, Copper, Zinc, Manganese
Fanny Rawlings	Leadville	Kanawha Gold Mining Co.	Delaware Block, Leadville	Gold, Sil., Lead, Copper, Zinc
Fortuna (a)	Leadville	Starr Leasing Company	Leadville	Silver, Lead, Manganese
Henrietta	Leadville	Henrietta Mines Company	Leadville	Silver, Lead
Hibschle Shaft	Leadville	Seventh St. Mining Co.	Leadville	Gold, Sil., Lead, Copper
Ibex	Leadville	The Ibex Mining Co.	Leadville	Gold, Silver, Lead
Izard	Leadville	Izard Lease	Box 606, Leadville	Gold, Silver, Lead
Lillian	Leadville	Tim Riley & Co.	Leadville	Silver, Iron
Little Alice	Leadville	Two Mile High Mining Co.	First Nat'l Bank Bldg., Denver	Gold, Sil., Lead, Zinc
Louisville	Leadville	Louisville Mine	219 Railway Exchange Bldg., Denver	Gold, Silver, Lead
Matchless No. 7 (a)	Leadville	Mrs. H. A. W. Tabor	Vendome Hotel, Leadville	Silver, Iron
Mecca	Wortman	Mecca Mining Co.	Wortman	Gold, Silver, Lead
Mikado	Leadville	The Mikado Lease	Box 606, Leadville	Silver, Lead, Manganese
P. O. S. Shaft (a)	Leadville	P. O. S. Leasing Company	Leadville	Silver, Iron (c)
Ponsardin Shaft (a)	Leadville	Seneca Mining Company	603 Harrison Ave., Leadville	Gold, Silver, Zinc
Prince of Wales	Leadville	Prince of Wales Leasing Co.	Leadville	Silver (c)
Robert E. Lee	Leadville	Robert E. Lee Lease	520 West Chestnut St., Leadville	Gold
St. Louis	Leadville	John Cortellini	329 West 8th St., Leadville	Zinc
Shamus O'Brien	Leadville	New Denver City Mining Co.	Box 548, Leadville	Silver
Snowlode Tunnel	Leadville	Wilkesbarre Leasing Co.	Box 342, Leadville	Gold, Sil., Copper, Zinc
South Ibex	Leadville	South Ibex Mines Co.	Leadville	Lead, Iron
Star	Leadville	Star Cons. Mines Co.	304 East 8th St., Leadville	Zinc
Tucson	Leadville	Tucson Lease	Leadville	Silver, Lead, Cop., Zinc
Yak	Leadville	Yak Mines—A. S. and R. Co.	Leadville	

OPERATING MINES IN LA PLATA COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Idaho-Valley View	Hesperus	Valley View Cons. G. M. Co.	Hesperus	Gold, Silver
Lucky Moon (a)	Durango	Allison L. Kroeger	Durango	Gold, Silver, Zinc
May Day	May Day	Cumberland Mines Company	Hesperus	Gold, Silver

OPERATING MINES IN LARIMER COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Colorado (a)	Log Cabin	T. C. Sullivan	Log Cabin	Gold, Silver
Gold Bug (a)	Log Cabin	Gold Bug M. & M. Co. Ltd.	Log Cabin	Gold, Silver
Golden Reward (a)	Manhattan	W. E. Whitham	516 Cherry St., Ft. Collins	Gold, Sil., Copper
Prodigal (a)	Manhattan	John W. Rigdon	Fort Collins	Gold, Silver
Rockfield	Manhattan	S. A. Prendergast	Log Cabin	Gold, Sil., Copper
Windy Point	Log Cabin	T. C. Sullivan	Log Cabin	Gold, Silver

OPERATING MINES IN MINERAL COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Bachelor	Creede	Bachelor M. & M. Co.	609 U. S. Nat'l Bank Bldg., Denver	Silver
Bethel	Creede	Bethel Mining & Leasing Co.	3730 South Grand Ave., Los Angeles, Cal.	Silver (c)
Fluorspar	Wagon Wh'l Gap	S. B. Collins	Wagon Wheel Gap	Fluorspar
Last Chance	Creede	Morgan & Sloan	Creede	Silver
New York	Creede	Morgan & Sloan	Creede	Silver
Resurrection	Creede	Midwest Mining Company	Detroit, Michigan	Silver (c)
Silver Horde (a)	Creede	Silver Horde M. & M. Co.	Creede	Silver (c)

OPERATING MINES IN MONTROSE COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Farmer Boy	Nuclea	C. H. Mason and P. L. Wood	Nuclea	Carnotite
Long Park	Naturita	United States Radium Corp.	30 Church St., New York, N. Y.	Carnotite
Standard (m)	Naturita	Standard Chemical Company	Vanadium Bldg., Pittsburgh, Pa.	Carnotite

(a) Operated for part of the year only. (c) No production in 1923. (m) Mill operated in connection with mine.

OPERATING MINES IN OURAY COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Atlas.....	Ouray	Atlas M. & M. Company	Sheffels	Gold, Silver, Lead, Zinc
Barstow.....	Ironton	Emil Johnson	Ouray	Gold, Silver, Lead, Zinc
Eva (a).....	Ouray	John P. Martin	Ouray	Gold, Sil., Lead (c)
Gustin (a).....	Ouray	Frank L. Ross	736 Gas and Elec. Bldg., Denver	Gold, Silver, Lead, Zinc (c)
Mt. Hayden.....	Ouray	White Mt. Mining Co	Ouray	Gold, Silver, Lead, Zinc (c)
Mountain Top.....	Ouray	Mountain Top Mining Co.	Ouray	Gold, Silver, Lead, Copper, Zinc
Revenue.....	Ouray	Revenue Tunnel Mines Co.	1555 Sherman St., Denver	Gold, Silver, Lead, Zinc
Ru'ville Group.....	Ouray	Ernest Hoffman & Sons	Silverton	Gold, Silver, Lead
Scotch and Irish Girl.....	Ouray	Andrew Meldrum	Ouray	Gold, Silver
Thistedown.....	Ouray	McCullough-Withrow Leasing Co.	Ouray	
Wm. Penn.....	Ouray	Silver Screen M. & M. Co.	33 Union Square, New York, N. Y.	Silver, Copper

OPERATING MINES IN PARK COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Aetna (a).....	Alma	A. H. Reynolds	Centerburg, Ohio	Gold, Silver (c)
Copper Glance (a).....	Shawnee	C. F. Appleman	Shawnee	Gold (c)
Criterion.....	Alma	C. L. Sloan & Co.	Alma	Gold (c)
Excelsior and Paris (a).....	Alma	Mt. Bross Ores Co	1674 Broadway, New York	Gold, Silver
Funston and Lookout (a).....	Alma	Dan O'Connell	Alma	Gold, Silver (c)
Lincoln.....	Alma	Lincoln Cons. Mining Co	Alma	Gold, Silver, Lead, Zinc
London.....	Alma	London Gold Mines Co.	Colorado Springs	Gold, Silver, Lead
Missouri.....	Cassells	C. M. Snyder	Cassells	Gold, Silver, Lead, Copper
North Side London.....	Alma	London Mines Leasing Co.	624 Central Savings Bank Bldg Denver	(c)
Orphan Boy (a).....	Alma	Iroquois Mines Company	1066 Patterson Bldg., Denver	Gold, Silver
Sweet Home.....	Alma	Sweet Home Gold and Silver M. & M Co.	408 Tramway Bldg., Denver	Gold, Silver, Lead, Copper

OPERATING MINES IN PITKIN COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Bonnybel (a)	Aspen	Bonnybel Lease	Aspen	Silver, Lead (c)
Copper Gulch (a)	Ashcroft	Dr. K. C. Sapero	Guardian Trust Bldg., Denver	Copper
Cowenhoven Tunnel and Hunter Creek Mill (m)	Aspen	Silver Mines Co. of America	1103 Peoples Bldg., Pittsburgh, Pa.	Gold, Silver, Lead, Copper, Zinc
Gem	Aspen	Gem Leasing Company	Aspen	Silver, Lead (c)
Hope	Aspen	Hope M., M. & L. Co.	Aspen	Silver, Lead
Hurricane	Aspen	Hurricane Leasing Company	Aspen	Silver, Lead (c)
Jewell	Aspen	Jewell Mining Company	517 Dan Waggoner Bldg., Fort Worth, Texas	Silver (c)
Midnight	Aspen	Midnight Mining Company	Aspen	Silver, Lead
Newman Tunnel	Aspen	Newman M., M. & L. Co.	Aspen	Silver, Lead
Park Tunnel	Aspen	Park Tunnel M. & M. Co.	Aspen	Silver, Lead
Smuggler (m)	Aspen	Smuggler Leasing Company	Aspen	Silver, Lead, Zinc
Veteran Tunnel	Aspen	Millinee Mining Co. and Spar Con. Mining Co.	Aspen	Silver

OPERATING MINES IN ROUTT COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Blue Jay	Hahns Peak	Claude McFadden	Hahns Peak	Gold Silver (c)
Florence R.	Hahns Peak	Glen Robbins	Hahns Peak	Gold Silver (c)
Royal Flush	Columbine	Hahns Peak Gold M. & M. Co.	Room 3, Algoma Bldg., Oshkosh, Wisconsin	Gold, Silver, Zinc, Copper (c)
Tom Thum and New Discovery	Steamboat Sp'gs.	Tom Thum Syndicate	Steamboat Springs	Gold Silver (c)

OPERATING MINES IN SAGUACHE COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Cocomongo	Bonanza	Cocomongo Mines Co.	541 F St., Salida	Silver
Orient	Mineral Hot Spgs.	Colorado Fuel & Iron Co.	820 Boston Bldg., Denver	Iron
Rawley (m)	Bonanza	Colorado Corporation	201 14th St., Denver	Silver, Copper

(a) Operated for part of the year only. (c) No production in 1923. (m) Mill operated in connection with mine.

OPERATING MINES IN SAN JUAN COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Caledonian	Middleton	Caledonian M. & M. Co.	Eureka	Silver, Lead, Zinc
Dives	Howardsville	Dives Leasing Company	Durango	Gold, Silver
Gold King	Gladstone	Gold King Mines Corporation	Gladstone	Gold, Silver, Lead
Highland Mary (a)	Silverton	Highland Leasing Company	Silverton	Gold, Silver, Lead, Copper
Iowa (a) (m)	Silverton	Iowa Gold M. & M. Co.	Silverton	Gold, Silver, Lead, Copper, Zinc
Kansas City (a)	Silverton	Paul B. Walker	Ironton	Sil., Lead, Cop. (c)
Little Nation (m)	Howardsville	Little Nation Mining Company	423 Lee Bldg., Kansas City, Mo.	Gold, Silver, Lead, Copper, Zinc
Pride of the West	Howardsville	Wide West Mining Company	Silverton	Gold, Silver, Lead, Copper, Zinc
Sunnyside (m)	Eureka	Sunnyside M. & M. Co.	55 Congress St., Boston, Mass.	Gold, Silver, Lead, Copper, Zinc

OPERATING MINES IN SAN MIGUEL COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Alta (m)	Telluride	Belmont Wagner Mining Co.	500 Bullitt Bldg., Phila., Pa.	Gold, Silver, Lead
Black Bear (m)	Telluride	Colorado-Superior Mg. Co.	Telluride	Gold, Silver, Lead, Copper
Carbonero	Ophir	Ruittilla Brown Leasing Co.	Ophir	Gold, Silver, Lead, Copper, Zinc
Providence	Vanadium	Nite-lite Camp	Vanadium	Silver, Lead
San Bernardo	Ophir	Valley View Leasing & Mg. Co.	Ophir	Gold, Silver, Lead, Zinc
Sheridan Cresscut	Telluride	Gold Drift Leasing Company	Telluride	Gold, Silver, Lead, Copper, Zinc
Silver Bell (m)	Ophir	Ophir Loop Mines & Metals Co.	Ophir	Gold, Silver, Lead, Copper, Zinc
Smuggler Union (m)	Telluride	Smuggler-Union Mining Co.	Telluride	Gold, Silver, Lead
Tomboy (m)	Telluride	Tomboy Gold Mines Co., Ltd.	Telluride	Gold, Silver, Lead, Copper, Zinc

OPERATING MINES IN SUMMIT COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
American Eagle (a)	Shawnee	C. F. Appleman	Shawnee	Gold, Silver, Lead, (c)

Detroit.....	Breckenridge.....	Detroit Leasing Company.....	Breckenridge.....	Gold, Silver, Lead, Zinc
Four-Most (a).....	Frisco.....	Four-Most M. & M. Co.....	Frisco.....	Gold, Silver (c)
Fox Lake, etc.....	Breckenridge.....	Breckenridge Mfg. & Cyanide Co.....	Breckenridge.....	Gold, Silver, Copper (c)
Gibson Hill (a).....	Breckenridge.....	Gibson Hill Development Co.....	1006 Patterson Bldg., Denver.....	(c)
Hunkidory (a).....	Montezuma.....	Silver M. & M. Co.....	Montezuma.....	Gold, Silver, Lead, Copper
Ida Bell.....	Keystone.....	J. D. Oliver.....	Dillon.....	Gold, Silver, Lead, Copper
Jerry and Philadelphia (m).....	Montezuma.....	Washington Gold Quartz Mining Co., 30 North LaSalle St., Chicago, Ill.....	Silver	
Marlin (a).....	Montezuma.....	Marlin M., M. & Power Co.....	860 Omaha Nat'l Bank Bldg., Omaha, Nebraska.....	Gold, Silver, Lead
Missouri.....	Breckenridge.....	Detroit Leasing Company.....	Breckenridge.....	Gold, Silver, Lead, (c)
Monte Cristo (a).....	Shawnee.....	C. F. Appleman.....	Shawnee.....	Gold, Silver, Lead, Copper
Pennsylvania.....	Montezuma.....	Liberty Mining & Reduction Co.....	502 Masonic Temple, Denver.....	Gold, Silver, Lead, Copper
Royal Tiger.....	Tiger.....	Royal Tiger Mines Co.....	Tiger.....	Gold, Silver, Lead, Copper
Ryan Placer (a).....	Breckenridge.....	Ryan Placer Mining Company.....	1006 Patterson Bldg., Denver.....	
St. John (a).....	Montezuma.....	St. John Mines, Ltd.....	Broad St. House, London, England.....	Silver, Lead
Standard.....	Breckenridge.....	Boyce Bros.....	Breckenridge.....	Gold, Silver, Lead
Warriors Mark and Seven Thirty.....	Breckenridge.....	Aco Mining Company.....	Room 810, 342 Madison Ave., New York, N. Y.....	Gold, Silver, Lead
Wellington.....	Breckenridge.....	Wellington Mines Company.....	1000 Grand Ave., Temple, Kansas City, Mo.....	Gold, Silver, Lead
Yost.....	Tiger.....	Yost Gold Mines Corp.....	429 16th St., Denver.....	Gold

OPERATING MINES IN TELLER COUNTY, 1923

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
American Eagles, etc.	Cripple Creek	Stratton C. C. M. & D. Co.	Box 178, Colorado Springs.....	Gold
Anaconda (a)	Cripple Creek	Anaconda Leasing Company	202 Boston Bldg., Denver.....	Gold (c)
Bad Boy (a)	Cripple Creek	A. J. Wirebaugh.....	Cripple Creek.....	Gold (c)
Bertha B. (a)	Cripple Creek	Bertha B. Leasing Company	208 So. 3rd St., Victor.....	Gold (c)
Blue Bell (a)	Victor.....	Blue Bell Leasing Company	Box 75, Victor.....	Gold

(a) Operated for part of the year only. (c) No production in 1923. (m) Mill operated in connection with mine.

OPERATING MINES IN TELLER COUNTY, 1923.—Continued.

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Blue Bird	Victor	Buckeye M. & M. Co.	Colorado Springs	Gold
Conundrum	Cripple Creek	Phoenix Deep Mining Co.	814 Central Savings Bank Bldg., Denver	Gold
Cresson	Cripple Creek	Cresson Cons. G. M. & M. Co.	Colorado Springs	Gold (c)
Delmonico (a)	Victor	Pringle Mining Co. and A. L. Ducey	810 Equitable Bldg., Denver	Gold
Doctor Jack Pot	Cripple Creek	Doctor Jack Pot Mining Company	Cripple Creek	Gold
Elkton	Elkton	Raven Hill Mining & Leasing Assn.	Colorado Springs	Gold
El Paso (a)	Cripple Creek	C. K. & N. Extension M. & L. Co.	1006 Patterson Bldg., Denver	Gold
Empire Shaft of Isabella	Independence	Burbridge & Co.	214 American Bank and Trust Bldg., Denver	Gold (c)
Fauntleroy	Cripple Creek	McClanahan Gold Mining Co.	Denver	Gold
Forest Queen (a)	Victor	John Connors	618 Lafayette St., Denver	Gold (c)
Free Coinage	Independence	Rogers & Bennett	Independence	Gold
Gold Sovereign	Cripple Creek	Evan J. Williams	Cripple Creek	Gold
Granite	Victor	Granite Gold Mining Company	Mining Exchange Bldg., Colorado Springs	Gold
Homestake	Cripple Creek	Theobald & Moffet	Independence	Gold
Ironclad	Cripple Creek	Iron Clad Hill M. & D. Co.	509 Market St., Kenosha, Wisconsin	Gold (c)
Isabella	Independence	Morris Brothers	Victor	Gold
Jay Gould (a)	Cripple Creek	Jay Gould Mining Company	Cripple Creek	Gold
Jerry Johnson	Cripple Creek	Jerry Johnson Gold Mining Co.	Cripple Creek	Gold
Kalamazoo	Independence	Giblin & Co.	Independence	Gold
Lee Shaft of Isabella	Victor	Empire Lee Mining Company	222 Burns Bldg., Colorado Springs	Gold
Mary McKinney	Cripple Creek	Mary McKinney Mining Company	Box 1346, Cripple Creek	Gold
Midget (a)	Cripple Creek	Lee & Co.	Cripple Creek	Gold
Modoc	Cripple Creek	Modoc Cons. Mines Company	Victor	Gold
Mollie Kathleen (a)	Cripple Creek	Reclamation Metal Mines Co.	7 North Tejon St., Colorado Springs	Gold (c)
New Gold Dollar (a)	Victor	Pringle Mining Company	810 Equitable Bldg., Denver	Gold
North Burns (a)	Victor	C. W. Searies	Cripple Creek	Gold
Portland	Victor	Portland Gold Mining Co.	310 Mining Exchange Bldg., Colorado Springs	Gold
Rose Nicol	Elkton	Kyner & Co.	Cripple Creek	Gold
Sangre de Cristo	Cripple Creek	Reclamation Metal Mines Co.	7 North Tejon St., Colorado Springs	Gold
South Burns	Cripple Creek	Neusta Ventura Mining Corp.	Cripple Creek	Gold
Tonopah Ajax	Victor	Tonopah Ajax Mining Company	Victor	Gold
Victor	Cripple Creek	Al. Osberg	Cripple Creek	Gold
Vindicator, etc.	Cripple Creek	United Gold Mines Company	271 E. Bennett Ave., Cripple Creek	Gold

OPERATING OIL SHALE PROPERTIES IN GARFIELD COUNTY, 1923

Name	Location	Operator	P. O. Address
Little Jim	Grand Valley	Joseph D. Ahearn	Glenwood Springs
	Grand Valley	American Shale Refining Co.	507 First Nat. Bank Bldg., Denver
	Grand Valley	T. E. Bailey & Co.	Grand Valley
Jones	Grand Valley	J. W. Bell	Glenwood Springs
	DeBeque	Joseph Bellis	Grand Valley
	Fruita	Belvidere Shale Company	Grand Junction
Callahan	Grand Valley	Black Prince Shale Company	Durango
	DeBeque	Callahan Oil Shale Company	506 First Nat. Bank Bldg., Denver
	DeBeque	Campbell Refining Company	250 W. 57th St., New York, N. Y.
Columbia	Grand Valley	Colorado Carbon Company	700 E. and C. Bldg., Denver
	DeBeque	Columbia Oil Shale & Refining Co.	532 Equitable Bldg., Denver
		Conservative Shale Group	
Ute Rock	Grand Valley	Grant Bales & Assoc.	DeBeque
S. O. S. and Lucky Strike	DeBeque	John Cortellini & Assoc.	Leadville
Reed Doyle	Grand Valley	Dr. W. A. DeBeque	DeBeque
Eaton	Grand Valley	James Doyle	2125 Grove St., Denver
	DeBeque	R. L. Eaton	Glenwood Springs
	Grand Valley	J. F. Gregory	Glenwood Springs
Index	DeBeque	L. B. Hedge	DeBeque
Gary	Grand Valley	Index Shale Oil Company	DeBeque
	Grand Valley	Joseph Juhon	Glenwood Springs
	Grand Valley	Samuel McMullin	Grand Junction
Lyons	DeBeque	Monarch Shale Oil Company	720 Symes Bldg., Denver
Mt. Logan	DeBeque	Mt. Blaine Oil Shale Co.	DeBeque
Phenol	Grand Valley	Mt. Logan Oil Shale M. & R. Co.	DeBeque
	DeBeque	Emil Nelson	St. Paul, Minn.
		Oil Shale Mining Company	DeBeque
		Overland Producing and Refining Company	
Schuyler	Grand Valley	Refining Company	310 Boston Bldg., Denver
	DeBeque	March Oil Shale Co.	506 First Nat. Bank Bldg., Denver
	Grand Valley	Searchlight Oil Shale Co.	DeBeque
	DeBeque	G. A. Taff	Exch. Nat. Bk. Bldg., Colo. Sp'gs
	Grand Valley	Union Oil Company of California	Union Oil Bldg., Los Angeles, Cal.
		Washington Shale Company	722 Symes Bldg., Denver

OPERATING OIL SHALE PROPERTIES IN MESA COUNTY, 1923

Name	Location	Operator	P. O. Address
	DeBeque	American Mineral Oil Co.	Cooper Bldg., Denver
	DeBeque	L. E. Girard	Boulder
	Collbran	Ochner Hotaling Company	San Francisco, California
	DeBeque	Pyramid Shale Company	1750 Williams St., Denver

(a) Operated for part of the year only.

(c) No production in 1923.

(m) Mill operated in connection with mine.

OPERATING QUARRIES AND CLAY PITS, 1923

Town	Location County	Name	Product	Operator	P. O. Address
Lyons	Boulder	Sandstone	Sandstone	J. C. Brodie	Lyons
Garfield	Chaffee	Monarch-Contact	Limestone	Drs. Cochems and Shaffer	Salida
Salida	Chaffee	Rose Pink	Granite	Salida Granite Corporation	Salida
Castle Rock	Douglas	Brick Yard	Fire Clay	A. C. Nipko	Box 285, Castle Rock
Castle Rock	Douglas	Johnson	Plastic Clay	F. L. Scott	Castle Rock
Castle Rock	Douglas	Ware	Plastic Clay	W. S. Hawn	Larkspur
Manitou	El Paso	Rainbow	Sandstone	J. H. Harkins	1019 East Costilla, Colorado Springs
Manitou	El Paso	Manitou	Limestone	Western Lime Company	305 Sugar Bldg., Denver
Canon City	Fremont	Burnito	Ganister	S. Vernon St. John	Canon City
Calteite	Fremont	Calteite	Limestone	Colorado Fuel & Iron Co.	820 Boston Bldg., Denver
Canon City	Fremont	Clay Pit	Fire Brick	Colorado Lime Corporation	232 Empire Bldg., Denver
Concrete	Fremont	Concrete	Limestone, Shale	Summit Pressed Brick & Tile Co.	14th and Water Sts., Pueblo
Canon City	Fremont	Dolomite	Dolomite	U. S. Portland Cement Co.	508 Ideal Bldg., Denver
Canon City	Fremont	Flint, etc.	Fire Clay	John P. Thomas, Jr.	Canon City
Canon City	Fremont	Grape Creek	Ganister	Diamond Fire Brick Co.	Canon City
Canon City	Fremont	Gypsum	Limestone	Standard Fire Brick Co.	Canon City
Wellsville	Fremont	Lime	Limestone	T. A. Gilray	Coaldale
Canon City	Fremont	Jewett	Fire Clay	Guy Post and F. M. Nigro	647 E. St., Salida
Cotopaxi	Fremont	Noon	Granite	Jewett Fire Brick Co.	Canon City
Canon City	Fremont	Parkdale	Fire Clay	Peter Noon	Cotopaxi
Portland	Fremont	Portland	Limestone, Shale	Carl Ehlenfeld	Canon City
Texas Creek	Fremont	Texas Creek	Granite	Colorado Portland Cement Co.	Ideal Cement Bldg., Denver
Salida	Fremont	Travertine or Crystal	Travertine	J. A. Lamb	Texas Creek
Canon City	Fremont	8 Mile	Limestone	Colorado Marble & Stone Co.	Denver
Marble	Gunnison	Carrara	Marble	Gennaro Ricchuti	Canon City
Marble	Gunnison	Old Strauss	Marble	Carrara Yule Marble Co.	Marble
Marble	Gunnison	Yule	Marble	Colorado Marble Co.	Buffalo, New York
Golden	Jefferson	Apex	Fire Clay	Yule Marble Co. of Colorado	Colo. Nat. Bank Bldg., Denver
Golden	Jefferson	Binder	Plastic Clay	Geo. W. Parfet, Jr.	Golden
Golden	Jefferson	Fire Clay	Fire Clay	Denver Sewer Pipe & Clay Co.	219 Temple Ct. Bldg., Denver
Golden	Jefferson	Fire Clay	Fire Clay	Denver Sewer Pipe & Clay Co.	Denver
Golden	Jefferson	Golden	Fire Clay	Grant Parfet	Golden
Golden	Jefferson	Hoyt	Fire and Plastic Clay	Golden Clay Mining Co.	1936 15th St., Denver
Golden	Jefferson	No. 2 Tunnel	Fire Clay	Geo. W. Parfet, Jr.	Golden
Golden	Jefferson	No. 10 Clay	Plastic Clay	Golden Clay Mining Co.	Golden
Golden	Jefferson	No. 32 Tunnel	Fire Clay	Golden Clay Mining Co.	Golden
Golden	Jefferson	Lower Tunnel	Fire Clay	Chris. Bennetts	Golden
Golden	Jefferson	Queen City	Plastic Clay	Link Stephans	Golden
				Denver Pressed Brick Co.	219 Temple Ct. Bldg., Denver

OPERATING MILLS AND SMELTERS, 1923

Character of Plant	Town	Location	County	Operator	P. O. Address
Arsenic and Cadmium Refinery	Denver	Adams and Denver	Adams	American Smelting & Refining Co.	704 Equitable Bldg., Denver
Ore Sampler	Idaho Springs	Clear Creek	Clear Creek	Clear Creek Gilpin Ore Co.	Idaho Springs
Carnotite Reduction	Denver	Denver	Denver	Pittsburg Radium Company	2145 So. Mariposa St., Denver
Cyanidation	Colorado Springs	El Paso	Colorado	Golden Cycle M. & R. Co.	Box 86, Colorado Springs
Zinc Oxide Mfg.	Canon City	Canon City	Fremont	The Empire Zinc Company	160 Front St., New York, N. Y.
Zinc Oxide Mfg.	Florence	Florence	Florence	River Smelting & Refining Co.	Florence
Lead Smelter	Leadville	Lake	Lake	American Smelting & Refining Co.	704 Equitable Bldg., Denver
Concentration	Leadville	Lake	Lake	Gustavus Sessinghaus & Co.	Leadville
Zinc Oxide Mfg.	Leadville	Lake	Lake	Western Zinc Oxide Company	Leadville
Lead Smelter	Durango	La Plata	La Plata	American Smelting & Refining Co.	704 Equitable Bldg., Denver
Zinc Oxide Mfg.	Pueblo	Pueblo	Pueblo	United States Zinc Company	120 Broadway, New York, N. Y.
Ore Sampler	Victor	Teller	Teller	Eagle Samplers, Inc.	Victor
Compressed Air Plant	Independence	Teller	Teller	The Teller County Air Co.	Cripple Creek
Golden	Jefferson	Rockwell & Apex	Plastic Clay	G. W. Parfet	Golden
Golden	Jefferson	Rubey	Plastic Clay	H. M. Rubey Clay Co.	Golden
Golden	Jefferson	Sweet Tunnel	Fire Clay	Grant Parfet	Golden
Golden	Jefferson	Upper Tunnel	Fire Clay	Link Stephens	Golden
Golden	Jefferson	Plastic Clay	Plastic Clay	W. R. Salmmons	Golden
Golden	Jefferson	Plastic Clay	Plastic Clay	Thomas Shepard	Rockwood
Rockwood	La Plata	Bells	Limestone	John F. Bell	Ingleside
Ingleside	Larimer	Ingleside	Limestone	Fred Acosta	Ingleside
Ingleside	Larimer	Ingleside	Limestone	James Vangel	Bellvue
Bellvue	Larimer	Josefson	Limestone	Josefson Brothers	205 West Monroe St., Chicago, Ill.
Loveland	Larimer	Loveland	Gypsum	United States Gypsum Co.	Laporte
Laporte	Larimer	Larimer	Limestone	Dem Furones	Laporte
Ingleside	Larimer	Larimer	Limestone	John Lewandowski	Trinidad
Las Animas	Las Animas	Shale	Fire Clay	Trinidad Brick & Tile Co.	La Junta
La Junta	Otero	Plastic Clay	Plastic Clay	La Junta Clay Products Co.	320 Boston Bldg., Denver
Lime	Pueblo	Lime	Limestone	Colorado Fuel & Iron Co.	106 East B St., Pueblo
Pueblo	Pueblo	Livesey Rock	Limestone	Wm. Olson & Son	14th and Water Sts., Pueblo
Pueblo	Pueblo	Fire Clay	Fire Clay	Summit Pressed Brick & Tile Co.	406 Thatcher Bldg., Pueblo
Pueblo	Pueblo	Turkey Creek	Plastic Clay	Pueblo Clay Products Co.	302 Central Block, Pueblo
Pueblo	Pueblo	Turkey Creek	Sandstone	Turkey Creek Stone, Clay and Gypsum Company	Pueblo
Mustang	Pueblo	Vulcan	Fire and Plastic Clay	Standard Fire Brick Co.	Villa Grove
Villa Grove	Saguache	Saguache	Marble	Colo. Decorative Marble Co.	Pueblo

OPERATING PLACER MINES AND DREDGES, 1923

Name	Town	Location	County	Operator	P. O. Address
Mt. Elbert Dredge					
Fairplay Dredge	Twin Lakes	Lake		Mt. Elbert Gold Dredging Co.	Box 929, Leadville
	Fairplay	Park		South Park Dredging Co.	433 California St.,
Blue River Dredge	Breckenridge		Summit	Blue River Placer Mining Co.	San Francisco, California
Tonopah Dredge	Breckenridge		Summit	Tonopah Placers Company	Breckenridge
					Breckenridge

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Campbell Refining Company.....	45
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